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ABSTRACT Proceedings of the 1984 Music in Early Childhood Conference held at Brigham Young University are presented in this document. Part I contains keynote addresses; Parts II through IV, respectively, consist of reports by research teams, synopses of workshops, and abstracts of research sessions. Keynote speakers addressed a broad scope of issues related to early childhood and music education. Joe L. Frost's paper, "Toward an Integrated Theory of Play," reviewed different theories of play and play environments spanning 3,000 years. David Elkind in "Hurried Children-Stressed Children" warned that hurried children, whether "clock hurried" or "calendar hurried," often become the nation's stressed children. A contemporary state-of-the-art perspective of early childhood music achievements, practices, and research was given by Marilyn Zimmerman. Lyle Davidson presented his analysis of tonal structures used in songs by preschool children. Barbara Andress contrasted structured musical experiences with exploratory-based activities and addressed the practitioner's need to use age-appropriate materials. Reports by three research teams comprised of music educators and early childhood specialists focused on (1) expanding the music listening preferences of 3- and 4-year-olds by fostering recognition of and responsiveness to selected works of music; (2) recent research on young children and its implications for teaching and development as well as for music education; and (3) nurturing and assessing aesthetic response in preschool children. Workshops explored stages of children's movement to music, multicultural music materials for early childhood, the play songs of Japanese children, music in family and family-like settings, social learning through music and other activities, young children's spontaneous singing, nurturing creative behavior in early childhood, cultivating music awareness, a parent/toddler music program, procedures for training the singing voice of young children, and learning styles. Topics of research sessions were the role of music in child development, historical reasons for teaching music to young children, music and language learning in early childhood, observations of music babble in young children, children's understanding of pitch and pitch relations, children's figural and metric understanding of rhythm, the nature and structure of rhythm, naturalistic observation of young children's musical behaviors, influences of home and family on musical opportunities of educationally advantaged young children, and preschool children's spontaneous songs. (RH)

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Contemporary Principles in Child Development and Music Education

Proceedings of the Music in Early Childhood Conference

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THE YOUNG CHILD AND MUSIC:

Contemporary Principles in Child Development and Music Education

Proceedings of the Music in Early Childhood Conference

Brigham Young University
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Arizona State University, Tempe

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FOREWORD

Music is a cultural keystone in any society. The maturity of a nation is directly reflected in individuals' sensitivity to each other. The ability to communicate expressively is inherent in a feelingful relationship with others. The building of musicality, the sensing, hearing, and sharing of beauty must begin with the very young child whose social, emotional, motor, and intellectual skills are in a critical stage of development. The application of developmental learning theories to music teaching and an understanding of the process of the child's interactions with the environment significantly affect successful early childhood curricula. One of the major goals of this early childhood conference was to establish a forum that would instill dialogue among the early childhood specialists, music educators, and learning theorists and researchers.

The conference attracted more than 300 participants, representing a diversity of interest groups that included early childhood classroom teachers, child caregivers, music educators, teacher educators, psychologists, researchers, church school administrators/teachers, parents, and students. Among the nationalities drawn to the conference were participants from Japan, Australia, Canada, the United Kingdom, and the Republic of China.

Keynote speakers addressed a broad scope of issues related to early childhood and music education. Frost's expository paper entitled "Toward an Integrated Theory of Play," reviewed different theories of play and play environments spanning 3,000 years. Weikart examined issues related to cross-cultural developmental stages. David Elkind eloquently warned that hurried children, whether "clock hurried" or "calendar hurried," often become the nation's stressed children. A contemporary state-of-the-art perspective of early childhood music achievements, practices, and research was given by Marilyn Zimmerman. Lyle Davidson presented his analysis of tonal structures used in songs by preschool children. Barbara Andress contrasted structured musical experiences with exploratory-based activities and addressed the practitioner's need to use age-appropriate materials.

Reports by three research teams comprised of music educators and early childhood specialists gave participants a rare vision of exciting collaborations. The research teams began their collaborations one year prior to their conference reports.

Workshops presented by national and international experts in early childhood music served to link theory to practice by providing materials and methods appropriate for immediate classroom use.

Goals for the Music in Early Childhood Conference were to:

- elevate awareness in the educational community about the importance and nature of music, and its relationship to the creative process and to the total development of the young child;
- provide a symposium for interactions among early childhood specialists, music educators, and learning theorists;
- investigate the nature of early childhood development and its implications for music education in four general areas: (a) learning through play; (b) psychomotor skills; (c) social/emotional behavior; and (d) cognitive functioning;
- identify and establish a network of early childhood resource persons and sites throughout the nation;
- demonstrate promising practices of age-appropriate musical experiences for young children.

Evolving from the conference was the conviction by participants that a successful early childhood music program must be based upon the developmental level of children and that to understand fully such an approach, repeated opportunities for early childhood interests groups to share their expertise will be needed.

This conference and this report would not have been possible without the encouragement and support of James A. Mason, Dean, College of Fine Arts and Communications at Brigham Young University.

Barbara Andress and Susan H. Kenney, Co-chairs
The Music in Early Childhood Conference

PART I

KEYNOTE ADDRESSES

TOWARD AN INTEGRATED THEORY OF PLAY

Joe L. Frost

Throughout history children have played their way into adulthood, yet, until recently, few adults have regarded children's play as serious or considered play to be important in child development. Plato and Aristotle attached practical significance to play, considering it valuable in learning such subjects as arithmetic and construction skills. Plato's view that children should play out roles expected of adults was a precursor of the preparation for life theory expounded by Groos (1898) in the late 19th century.

Play is very old, and it is universal. Archaeological excavations of ancient Egypt, China, and Peru reveal toys, tops, rattles, dolls, and other playthings made of pottery and metal as well as drawings by adults depicting various play scenes. Anthropological studies of primitive people reveal the existence of play among all cultures and identify several characteristic types: (a) dancing and rhythmic movement, (b) mimicking and acting, (c) singing, (d) conversing and story telling, (e) arts and crafts, and (f) games and contests (Mitchell, 1937). One of the most salient characteristics of primitive people and a striking aspect of their play was response to rhythm, especially singing and dancing, which were engaged in by all recorded primitive cultures.

Early Theories of Play

Roots of theory can be traced to Aristotle and Plato, but the first serious efforts at theory building were not seen until the last half of the 19th century. As early as the 17th century a simpleminded explanation of play was that it was useful as recuperation from work. This same notion was elaborated by Schiller and Lazarus in the 19th century (Millar, 1968).

The first serious theory of play, the *surplus energy theory*, originating with Schiller in 1800 (Groos, 1898), was formalized by Spencer (1896), and reiterated by Tolman (1932). Schiller believed that play was the aimless expenditure of exuberant energy. Spencer explained that the organism expends energy either in goal-directed activity (which is work) or nongoal-directed activity (which is play). When the child has more energy than needed for work, play occurs. It is to the credit of both Schiller and Spencer that they recognized the relationship between play and the arts; they viewed play not only as the expression of exuberant energy but also as the origin of art.

A shortcoming of the surplus energy explanation of play is that children frequently play even when in a state of near exhaustion. The notion of surplus energy is based upon circular reasoning (Beach, 1945). When a cat chases, catches, and devours a mouse, energy is expended, but no one suggests that this is surplus energy. When the same cat chases, catches, and chews on a ball, energy is also expended, but this is said to be surplus energy. Because ball chasing serves no practical end, it must be play, but mouse catching is not play. The decision about whether the expended energy is surplus depends upon whether the behavior is considered serious or playful. Therefore, to explain play as the release of surplus energy is to do no more than complete the circle. The speculative writings of Spencer had only limited impact compared with the systematic observations in Charles Darwin's *The Origin of the Species* (1859).

A second explanation of play, the *recapitulation theory*, has its origin in Darwin's view that humans evolved from lower species. This theory holds that the child at plays mirrors the behavioral evolution of the species and that play rehearses the activities of the race during forgotten ages (Gulick, 1898). G. Stanley Hall's (1906) interest in both evolution and child psychology led him to formalize the recapitulation theory. Children are a link in the evolutionary chain from animals to humans and reenact through play the interests and occupations of prehistoric people and their remote animal ancestors. Water play proved primeval origins in the sea; climbing trees showed vestiges of ape-like ancestors; gang play echoed primitive tribal life.

The recapitulation theory breaks down under modern scrutiny. Piloting space ships and firing laser guns can hardly be considered rehearsal of ancient experiences. There is no tidy linear progression in play that links it to primitive eras, but the theory was a natural outgrowth of the intense interest in human origins. Compared with the present time, society at the turn of the century was very simple. Radio, television, airplanes, automobiles, electricity, and other miraculous devices were not available to lend perspective to the play and playthings of children. Fortunately, theory does not have to be correct in order to be useful. As Millar (1968) aptly points out, Hall's theorizing about play had the excellent effect of stimulating interest in children's behavior.

A third major explanation of play, the *instinct-practice theory*, was elaborated by Groos in *The Play of Animals* (1898) and in *The Play of Man* (1901). The concept of play as preparation for adult life was a derivative of earlier instinct theories, which held that play is caused by instinctive need (McDougall, 1923). Like most of his scholarly counterparts of the period, Groos was heavily influenced by the work of Darwin. Animals inherit instinctive behaviors, but practice is needed to perfect them. Kittens chasing yarn balls become adept at catching mice. Infants learn to control their bodies through crawling, reaching, grasping, and moving.

The child's models are the behaviors of his parents and the occupations of others. In imitating adults, the child tests various possibilities, and this influences his later choice of a life's calling. It is to his credit that Groos (1901) extended his point of view beyond the mere mechanical, preparatory for life activities to approach a contemporary view of play:

> I would remark that imitation is almost never merely that; it is creation as well, production as well as reproduction. Close on the heels of imitation comes imagination (p. 290).

The impact of early experiences on later life is now well documented. The opportunity or lack of opportunity to play during childhood certainly has consequences for later life. However, Groos proposed that the infant plays in order to train for specific skills. A more accurate view is that "play leads to mastery of self and environment from a general development aspect, that is, personality and intelligence, as opposed to specific skills" (Frost & Klein, 1979, 1984, p. 3). Children at play are not concerned with any possible future benefits of their play.

A fourth theory of play, the *relaxation theory*, was proposed by Patrick (1916). He held that the term *play* may be applied to all free and spontaneous activities that are pursued for their own sake. Play, he believed, is activity for the relief of mental fatigue brought on by the demands of modern life. Patrick's theory was primarily relevant for adults. He believed that the child's play life is natural and free as contrasted with the strain and inhibitions of adult activities. The relaxation theory is not necessarily inconsistent with the surplus energy theory, for excess muscular energy can be used up while the brain is being rested.

Recent Theories of Play

The *psychoanalytical theory* of play has roots in the earlier *cathartic theory*, which proposed that play was an activity for the pursuing of unpleasant or painful feelings and emotions. The interest of psychoanalysts in children's play originated with Freud in the early 1900s and was elaborated by Robert Walder (1933) and Erik Erikson (1950).

Freud (1922, 1959) explained play as the projection of wishes and the reenactment of unpleasant experiences in order to master them. The assumption that play revealed the inner life and motivation of the child led to the development of projective techniques, such as interpreting ink blots and making up stories from pictures. Freud's influence on play extended to various types of therapy for disturbed children using spontaneous play. In general, Freud believed that children link imagined objects and situations to the tangible and visible things of the real world. Desiring to be grown up and in control, the child converts passive roles into active ones, frequently imitating adult roles where a greater degree of control is exhibited. Through playing out unpleasant experiences, their effect on the child is diminished and he comes to terms with them. The need for play is reduced as the child grows older and greater control is achieved.

Erik Erikson added new dimensions to Freud's work by describing play as developmental progression in which the child adds new and more complex understandings about the world at each stage. We now see for the first time a theory of play that begins to tap play's broad dimensions and potential influences. Erikson's initial stage, autocosmic play, begins at birth. Play is centered on the infant's body and consists of "the exploration by repetition of sensual perceptions of kinesthetic sensations, vocalizations, etc." (Erikson, 1950, p. 220). Later in this stage the object of the child's play turns to other properties and things. The next stage of play, the microsphere, is a manageable world of toys and objects, a place for the child to visit when his or her ego needs an overhaul. If the child is unable to master this stage he or she may regress to the autocosmic stage, characterized by daydreaming, thumb sucking, or masturbating. The third stage, the macrosphere, occurs at nursery school age when the child shares play with others. Earlier stages are integrated into this one, so macrosphere play contains elements of the earlier stages. Major tasks of this stage are learning to participate in social play and learning when to engage in solitary play. Solitary play "retains an indispensable harbor for the overhauling of shattered emotions after period of rough going in the social seas" (Erikson, p. 194).

From a scientific perspective, the chief fault of the psychoanalytic theory, a serious one, is that it is primarily a subjective interpretation of play motives. Erikson's most important contribution to the understanding of play is not in his subjective explanation of motives for play but in his recognition of the uniqueness of play and in his descriptions of play as a developmental phenomenon contributing to mastery of the environment. Erikson (1950) concluded:

> What is infantile play, then? . . . It is not the equivalent of adult play, it is not recreation. The playing adult slips sideward into another reality; the playing child advances forward to new stages of mastery. I propose the theory that the child's play is the infantile form of the human ability to deal with experience by creating model situations and to master reality by experiment and planning (pp. 194-195).

Freud's notion that play is motivated chiefly by the pleasure principle and Erikson's view that the child achieves mastery through play are also basic elements in Piaget's cognitive-developmental theory. Piaget (1962) attributed the initial appearance of play to the pleasure derived from the infant's mastery of his own behavior. Play has a dual role in Piaget's theory. It serves as a vehicle for knowing and as an indicator of the child's cognitive development. In order to understand the significance of Piaget's views of play, they must be linked to his overall theory of intellectual development.

Piaget (1962) views intelligence as the organization of adaptive behavior. Adaptation is the modification of the organism through organism-environment interchange such that further interchanges and, consequently, modifications are enhanced. Adaptation occurs through the reciprocal processes of assimilation and accommodation. Cognitive assimilation is the action of the organism on the surrounding objects; accommodation is the action of the environment upon the organism. In play, reality is modeled or bent to the wishes of the child. That is, play is viewed as the assimilation of environmental stimuli with little regard to accommodation. In imitation, on the other hand, the child adapts himself to reality, mimicking or accommodating to the actions of another person.

The developmental progression of play is closely linked by Piaget (1962) to his stages of cognitive development. He built upon the work of Charlotte Buhler (1935) and Karl Buhler (1937) who described the progression of games and assigned labels that are still used in play research (see Table 1).

Since Piaget offers the most comprehensive theory available for understanding the intellectual development of children, his integration of play into that framework enhances its applicability for research and practice. Indeed, his theory of play, among those discussed in this paper, stands alone in this respect. Thus far it is the only one subjected to extensive empirical testing.

Limitations of Theory

The limitations of play theory are numerous, confounded by the absence of a clear definition. First, the theories deal only with specific elements or a limited sampling of the broad concerns of play. For example, Piaget's developmental play theory, though broader than most, is encapsulated in his massive theory of cognitive development. Consequently, in order to understand the broad dimensions of play one must study a monumental array of information.

Second, several theories (e.g., surplus energy, relaxation) involve single or limited variables and, from a scientific perspective, hardly qualify as theory at all. In practice, they have done a great deal of harm. Many practitioners at the present time still consider play a waste of time or an avenue to let off steam, and they construct play environments that are poorly suited to children's cognitive, social, affective, and psychomotor needs.

Third, the theories tend to be tied to the academic roles of their developers. Explanations of play are available from the disciplines of psychology, sociology, anthropology, child development, physical education, art, and education. Specialization has the advantage of isolation of specific variables for study, but such isolation does not necessarily lead to study of integrative elements.

Table 1

Types of Play and Periods of Cognitive Development

Piaget's Period of Cognitive Development	K. Buhler (1937)	Piaget (1962)
Sensorimotor period (0-24 months)	Functional games	Practice games
Concrete operations period	Construction games	Symbolic games
Preoperational subperiod (2-7 years)	Make-believe games	
Concrete operations	Collective games	Games with rules

Note. Adapted from Children's Play and Playgrounds (p. 9) by J. L. Frost and B. L. Klein, 1984, Austin, TX: Playgrounds International (Reprinted from Boston: Allyn & Bacon, 1979). Copyright by J. L. Frost and B. L. Klein. Adapted by permission.

Steven Hoppes (1984) illustrates these concerns.

> Physical education addresses play when it becomes sport and has physical ramifications. Sociology deals with play when it is an expression of social structure and values. Education takes up the topic when play has a bearing on learning and teaching. And anthropology speaks of play when it is a key to the understanding of the development of humankind. Yet each discipline also accepts, in practice, the multi-faceted nature of the phenomenon of play and the inadequacy of a mono-disciplinal explanation of it. Because of the limitations caused by the rigidity of the classification system of academia, play has been relegated to the periphery of these disciplines' attention. While these four disciplines profess an interest in play, none takes the responsibility of embracing this subject as a specialty (pp. 3-4).

The result, Hoppes aptly points out, is that a crazy quilt of theories and research has sprung up over the years, and the study of play continues to suffer from a reliance upon antiquated theory, a puritanical bias against play, a quest for seriousness by academicians, and a prevailing view that play is trivial and inconsequential.

Problems in Defining Play

Acknowledging the seriousness of these concerns, a central restriction on efforts to understand play is failure to agree on what play is. A few sample definitions illustrate this point:

Schiller: The aimless expenditure of exuberant energy.
Froebel: The natural unfolding of the germinal seeds of childhood.
Groos: Instinctive practice, without serious intent, of activities that will later be essential to life.
Dewey: Activities not consciously performed for the sake of any result beyond themselves.
Gulick: What we do because we want to do it.
Stern: Play is voluntary, self-sufficient activity.
Patrick: Those human activities which are free and spontaneous and which are pursued for their sake alone (Sapora & Mitchell, 1948, p. 114).

In his classic book Homo Ludens (1950) written in 1938, Huizinga said that play is not subject to exact definition logically, biologically, or aesthetically, and Ellis (1973) stated that pure play is only theoretically possible. Hence, we have to restrict ourselves to describing the main characteristics of play.

Huizinga (1950) characterized play in broad terms as necessary for culture, voluntary, irrational, limited in time and space, bound by rules, and free of imposed tasks.

> Play is a voluntary activity or occupation executed within certain fixed limits of time and place, according to rules freely accepted but absolutely binding, having its aim in itself and accompanied by a feeling of tension, joy and the consciousness that it is "different" from ordinary life (p. 28).

Huizinga avoided psychological interpretations of play and restricted his inquiry to its creative qualities and its special manifestations, using anthropological terms and explanations.

Piaget (1962), on the other hand, dealt in psychological interpretations. Although he avoided a precise definition, he linked play to his overall cognitive theory, pointing out that "play constitutes the extreme pole of assimilation to the ego, while at the same time it has something of the creative imagination which will be the motor of all future thought and even of reason" (p. 162).

As this paper is written, scholars continue their inquiries into the meanings of play. In the recent Handbook of Child Psychology, Rubin, Fein, and Vandenburg (1982) used about about 450 citations published between 1970 and 1982, with over 50% more recent than 1975. Over 700 articles on play were published between 1880 and 1980, growing from a dozen or so articles a decade before 1930 and accelerating to over 200 during the 1970s (Sutton-Smith, in press).

Sutton-Smith (in press) added new dimensions to the study of play. He proposed that there are two kinds of play—the rational and the irrational. Rational play is studied in the psychology of play and in the playground movement. The contexts for the study and pursuit of rational play are nursery schools, laboratories, and supervised playgrounds. Typically, investigators of rational play explore play and problem solving, play and creativity, play and cognitive development, and play materials and equipment. He argues that "one will get a very limited view of what children's play is about from such studies."

Irrational play, on the other hand, is more characteristic of the play research in folklore and in anthropology. Sutton-Smith implies that play scholars should follow the lead of early psychoanalytical approaches that dealt with the "disturbed and the deviant . . . and with regressive and animalistic play." His irrational play subjects would include "violent sports, libidinous foreplay, addictive gambling and war games," hardly the subject matter of nursery schools yet obviously relevant objects of study if we are to understand the complex dynamics of the subject. Sutton-Smith does not suggest that irrational play be our sole object of study: "little league baseball, barbie doll play, playing houses, playing with toy trucks and mobiles hanging over a crib are all a part of the necessary subject-matter we must tackle if we are to deal with play." Play and game concepts are rapidly becoming the source of metaphors for life activities by scientists, politicians, and others and increasingly replacing traditional political and evolutionary concepts for describing human affairs. In these terms, "games are neither inherently rational or irrational. They can be both. . . . It is high time to pay it [play] a more cosmic kind of respect."

Problems in Theory Building

Contemporary theorists recognize that play is a complex class of behaviors, yet their creative energies have been directed to explaining play essentially within the framework of respective disciplines or interests. Researchers have followed their lead, collecting and analyzing data on explicit categories of play or on patterns of play behavior and effects of play, relevant to specific disciplines rather than across disciplines. As a result, explanations and mountains of data are available, but critical analysis that would explain interrelationships across academic disciplines and corresponding dimensions of play need to be conducted.

Among major disciplines, the need for an integrated theory of play is perhaps greatest in education and child development, for these disciplines are deeply concerned with the practical consequences of theory. Those dealing with children need access to theory and research from both the social and the behavioral sciences, and they need theory to explain and to evaluate their child care or educational practices.

In order to be useful, theory must (a) explain the dimensions of its concern, (b) explain the data or experiences upon which it is based, (c) have predictive power, and (d) guide future research and practice. The older classical theories fail on all four counts. Narrow in perspective and shallow in conceptualization, they reflect the influence of eras when children were viewed as little adults and childhood was not yet discovered. Based upon little systematic observation and no scientific data, the recapitulation, the surplus energy, the instinct-practice, and the relaxation theories are all ways of saying that play, like childhood, is unimportant.

Toward an Integrated Theory of Play

I should like to offer a modest proposal for a preliminary integrative theory of play that would change the pattern of theory building within disciplines to theory building across disciplines. Such an explanation must, of course, meet common criteria for theory. It would have the advantage of lending depth and breadth to understanding play and would provide practitioners with a comprehensive, utilitarian, and unified view of the phenomenon. Consequently, educators and child developmentalists might extract meaningful implications and interrelationships for practice in family, school, and community contexts. An integrative explanation of play would not mitigate against continued theory building within disciplines or research on isolated dimensions of play; rather, it would use such data for its explanation and would be refined from continuing contributions.

It is proposed that play be explained from at least five interrelated perspectives: characteristics, motives, processes, functions, and content. We shall examine each of these in turn.

Characteristics of Play

Play can be explained by its characteristics. The work of scientists of the past 100 years and of philosophers dating back to Plato has yet to yield a universally acceptable definition of play. There are three common ways of characterizing play.

The first is to identify characteristics without making any effort to exclude play from other human behaviors. This was the practice of philosophers/practitioners before the advent of scientific investigations. For example, they proposed that play is active, play is spontaneous, play is serious, play is instinctive, play is self-sufficient, play is natural unfolding, play is pleasurable (Sapora & Mitchell, 1948, p. 114). A major fault of this process is that the characteristics identified are not distinctive; human behaviors other than play contain elements of spontaneity, seriousness, and joy. Although it is acknowledged that play is active and pleasurable, surely these are present in different degrees across play contexts. Finally, these early discussions are idealistic and, though not necessarily, they may be too vague for scholarly study.

A second method of characterizing play is to compare it with behavior that is not play. Among the primary human behavior, work comes closest to representing the antithesis of play. Although pure play and pure work may be theoretically possible, in practice play may contain elements of work and vice versa. Both Huizinga (1950) and Ellis (1973) identified the need to contrast play and nonplay and play and work, but neither proposed a scheme for doing it.

The two classes of human behavior, play and work, lie on a continuum with play at one end and work at the other end. Behaviors are more or less playful depending on the point at which they lie on that continuum. At some point play becomes work-play and eventually work. The use of such a continuum alleviates the problem of being unable to completely exclude play from other behaviors by allowing tendencies rather than absolutes.

Such a scheme is valuable for practitioners, because the activities of children can be classified as more playful or less playful, depending upon such factors as degree and nature of teacher involvement, source of the activity, and nature of materials used. An outdoor construction activity, wherein children are instructed by the teacher on the use of tools and the building of a rabbit hutch according to a scale drawing, would likely be less playful than a free choice construction activity, wherein children make their own choices from a wide array of materials, procedures, and outcomes.

Table 2

The Play-Work Continuum

Play is— Work may be	Work/Play	Work may be— Play is not
Intrinsically motivated	↔	Extrinsically motivated
Active	↔	Passive
Spontaneous	↔	Forced
Fun	↔	Drudgery
Process oriented	↔	Goal oriented
Self-initiated	↔	Other-initiated
Serious	↔	Unconcerned

Note. Adapted from Children's Play and Playgrounds, (p. 21) J. L. Frost and B. L. Klein, 1984, Austin, TX: Playgrounds International (Reprinted from Boston: Allyn and Bacon, 1979). Copyright by J. L. Frost and B. L. Klein. Adapted by permission.

A third way of characterizing play is to narrow the domain of play to specific features borrowed from various theoretical perspectives. Examples of this approach are found in the work of Piaget (1962, pp. 147, 150); Garvey (1977); Rubin, et al. (1983); and Almy (1984). An assumption of those using this approach is that play is a special activity with distinctive, though not exclusive, features that set it apart from other activities. Play, then, is explained as a disposition or tendency, determined by a certain orientation of the activity.

1. Play is a source of pleasure, evidenced by expressions of joy and excitement by the participants (Froebel, 1887; Groos, 1901; Valentine, 1942; Huizinga, 1950; Garvey, 1977).

2. Play is carried on for its own sake with emphasis on the play itself rather than its outcomes (Froebel, 1887; Groos, 1901; Patrick, 1916; Valentine, 1942; Huizinga, 1950; Piaget, 1962; Bruner, 1972).

3. Play is free of imposed rules or tasks (Huizinga, 1950; Bateson, 1955; Piaget, 1962; Schwartzman, 1978).

4. Play is intrinsically motivated (Huizinga, 1950; Berlyne, 1960; Bruner, 1972; Garvey, 1977; Schwartzman, 1978).

5. Play is spontaneous and voluntary (Patrick, 1916; Huizinga, 1950; Piaget, 1962; Garvey, 1977).

6. Play requires active involvement of the individual player (Piaget, 1962; Klinger, 1971; Garvey, 1977).

In addition to these characteristics of play in general, there are special characteristics, specific to types and stages of play, and there are effects of play that contribute to our understanding of the meaning and functions of play.

1. In symbolic or dramatic play characteristic of early childhood, play is a simulative, nonliteral, symbolic behavior that bridges the imaginary and real worlds and is characterized by an "as if" consciousness (Isaacs, 1933; Sutton-Smith, 1967; Reynolds, 1976; Fein, 1981).

2. In organized play or games with rules, characteristic of early and middle childhood, play is bound by rules (K. Buhler, 1937; Huizinga, 1950; Piaget, 1962).

3. From a therapeutic perspective, play is a means for overcoming fears, anxieties, and tensions (Klein, 1932; Isaacs, 1933; Axline, 1947; Erikson, 1950).

4. From educational/developmental perspectives, play is readiness. That is, play is a means for mastery of the environment and leads to readiness for further mastery.

Considerable evidence points to play as readiness. Examples follow:

Play provides adaptive potentiation. Through play, children develop cognitive prototypes (Sutton-Smith, 1967, 1977).

Through play, novel combinations are created and new strategies, applicable to novel situations, are developed (Bruner, 1972; Bruner, Jolly & Sylva, 1976).

Through play, the child assimilates objects to actions and these become mental schemas. These schemas are the functional equivalents of concepts and of the logical relationships of later development (Piaget, 1962).

Play is of deep significance, the germinal leaves of all later life (Froebel, 1887).

Play leads to discovery, verbal judgment, and reasoning. It is significant for manipulative skills, imaginative art, discovery, reasoning, and thought (Isaacs, 1933).

Play is necessary for culture. It actually becomes culture. Culture arises in the form of play. Civilization arises and unfolds in and as play (Huizinga, 1950).

Play with objects results in divergent production or more uses for objects (Sutton-Smith, 1968; Goodnow, 1969; Dansky, 1980b) and improves problem solving (Sylva, 1977; Smith & Dutton, 1979).

Divergent play experiences result in improvement in creative thinking (Pepler & Ross, 1981; Pepler, 1982).

Pretend play experiences result in improved problem solving (Sutton-Smith, 1968; Dansky & Silverman, 1973; Dansky, 1980b).

Play training for children enhances imaginative play (Smilansky, 1968; Feitelson & Ross, 1973; Smith & Syddall, 1978), creativity (Feitelson & Ross, 1973; Dansky, 1980a), language development (Vygotsky, 1967; Lovinger, 1974; Saltz, Dixon, & Johnson, 1977), and group cooperation (Rosen, 1974; Smith & Syddall, 1978).

Play training for teachers enhances their interaction with children during play (Busse, Ree, & Gutride, 1970; Singer & Singer, 1974; Wade, 1984).

Despite the rapidly expanding evidence that play influences or is associated with social, cognitive, and language abilities, the precise nature of these correspondences is yet to be identified. The evidence does indeed point to hypotheses that are useful both for future research and, in the absence of conflicting data, for present practice. There is no body of research or modern theory suggesting that play is not valuable or of no consequence. Investigators of play would likely agree that play is valuable in child development and that the research of the coming decade will further illuminate this fact.

Motives for Play

Play can be explained by its motives. The earliest definitions and theories of play addressed the issue of why children play. Froebel (1887) believed that the aims of early play in children changed as they advanced in age, from the seeking of activity as such to representation as such. Through play, children are filled with joy, and their physical, intellectual, and moral power are fed. In the psychoanalytical tradition, Isaacs (1933) observed the motives of possession, power, rivalry, recognition, sexual impulses, and guilt in children's play. The early energy, the recapitulation, and the instinct-practice theories all implied a corresponding motive. The aims, respectively, were to rid oneself of excess energy, to recapitulate the history of the race, or to practice skills needed in later life.

Several of the more recent views of motives have roots in Pavlov's (1927) orienting reflex notions. The orienting reflex triggers an automatic response to changes in the environment. Appropriate receptor organs orient to and investigate the source of the change. Drive theorists believe that learning results from the association of stimuli with responses that reduce basic drives, such as hunger, thirst, and sex. According to Berlyne (1960, 1969) and Hebb (1948) the organism seeks an optimum level of arousal. A low level of environmental stimulation results in boredom, and an excessive level of stimulation results in uncertainty and diverse exploration. In play situations when arousal reaches an optimum level, neither too high nor too low, play stops.

Berlyne (1969) also helped to place the concepts of internal and external motivation in perspective. Early studies of animals revealed that they often played just for the fun of it, even when basic drives such as hunger had been met. Berlyne proposed that intrinsically motivated behavior serves tissue needs. Play decreases arousal by increasing stimulation. From these perspectives, stimulus seeking is intrinsically motivated behavior aimed toward elevating arousal of the individual to an optimal level. Work, the corollary of play, is goal oriented, extrinsically motivated behavior aimed toward reducing arousal. Rather than attempting to force play to becoming a conceptual opposite of work, Ellis (1973) suggests facing the problem.

> A behavior may have many motives that are not mutually exclusive and an adequate explanation must recognize this. . . . It seems that pure play can occur only when all extrinsic consequences are eliminated and the behavior is driven on solely by intrinsic motivation. Pure play is probably only theoretically possible (p. 110).

The formulations of Bateson (1955, 1956) give insight into how play aids cognitive development. Play and fantasy allow children to learn the process of framing and reframing roles and, to a lesser extent, to learn the specific roles they play. The play itself, then, is a more important factor than the roles being played out. Bateson's work has influenced other contemporary play researchers.

Bruner (1972) and Bruner, et al. (1976) contend that children can "safely" engage in play and, being freed of the constraints of concern, can explore, discover, and practice new behaviors. In playing out behaviors, novel combinations are created; through attention to means over ends, new strategies, applicable to novel situations, are developed. The views of

Sutton-Smith (1967, 1977) about the importance of play in development parallel those of Bruner. He notes that play provides adaptive potentiation. Through play, children develop cognitive prototypes and associations that can be used in novel situations. In direct response to the question of motive ("why do children play?"), these contemporary views focus on play as an avenue for adaptive struggles or, if you will, play as a medium for cognitive and social development.

Processes of Play

Play can be explained by its processes or behaviors of children as they engage in play. These processes are frequently connected to areas of development presumed to be influenced by the play in question and are classified by some authorities across developmental periods. To exemplify, Piaget's (1962) explanation of play processes relates play and cognitive development. Consequently, his processes of play are typically categorized as cognitive processes or forms.

The first play of children, according to Piaget (1962), functional or exercise play, consists of simple repetitive actions or the infant's exercise of acquired behaviors. Through practice these behaviors give way to new motor responses and through adaptation become more complex and differentiated. Functional play is, essentially, repeating an action for the fun of it. As children repeat actions such as shaking a rattle, they try new combinations and thus learn their physical capabilities and cause and effect relationships. Although the assumption is criticized (for evidence to the contrary exists), Piaget holds that functional play is the only type that occurs during the sensorimotor period. In order to understand or believe Piaget's view, it is necessary to understand that his is a developmental theory. Preliminary vestiges of play behaviors that are characteristic of later play are seen in earlier stages and are integrated into the play of later stages. This should not be taken as anathema, for such is the nature of human development in general.

With the onset of the preoperational stage (ages 2-7), two forms of play behavior are initiated: symbolic and constructive. Symbolic play (frequently called dramatic, imaginative, or make believe play) is play behavior involving representation of an absent object or person--sitting in an empty box and imagining it is a space ship; putting on a cape and imagining one is Superman. Such play props symbolically become play materials or playgrounds of the mind. Common dramatic play themes are derived from imitation of parents, older siblings, and television heroes. In contrast to K. Buhler (1937) and Smilansky (1968), Piaget does not view construction play as a distinct stage of play. He maintains that construction play transcends other forms of play and occupies a position between play and work. In construction play, purposeless play gives way to purposeful play, resulting in creations or products. It is development from the manipulation of the functional stage to the formation of the construction stage.

As children enter the concrete operations period (7-11 years), their play takes on new dimensions, and games with rules emerge. They must accept prearranged rules and adjust to them; they must control their behavior within limits, for penalties are exacted for breaking the rules. The writer's observations indicate that American children at age 5 are already involved in games with rules. Perhaps television and the American emphasis on competitive sports at an early age have created precocious children, as compared to Piaget's sample. Games with rules are indeed competitive, yet a degree of cooperation is also required, for children must bend their behavior to the rules of the game and the behavioral norms of the group. Particularly in team activities, such as football and basketball, cooperation is essential to winning.

In the 1930s, Bailey (1933) and Isaacs (1933) described the play behaviors of 3-year olds as they sought out live contact with other children in order to play with them. Isaac's work crossed over both cognitive and social processes of play. He considered imaginative and manipulative play as "the starting point which leads to the child's discovery, reasoning and thought" (p. 209), yet his studies also dealt extensively with the processes of social play.

In her now classic study, Parten (1932) observed that social participation of preschoolers increased with the child's age and set about to classify play. She defined five social play categories: onlooker behavior, solitary play, parallel play, associative play, and cooperative play. In onlooker behavior, the child watches other children play but does not enter overtly into the play; in solitary play, the child plays independently, without reference to what other children are doing; in parallel play, the child plays independently but with toys like those of the other children; in associative play, the child plays with other children but with no organization of the activity around goals or materials; in cooperative play the child plays in a group that is organized for a particular purpose, such as dramatizing adult situations or playing a competitive game.

Both Piaget's and Parten's play categories have been used extensively by researchers and modified over time. These investigators include Shure (1963); Smilansky (1968); Seagoe (1970); Barnes (1971); Iwanaga (1973); Garvey (1974); Moore, Evertson, & Brophy (1974); Rubin, Maioni, & Hornung (1976); Tizard, Philps, & Plewis (1976); Rubin, Watson, & Jambour (1978); Campbell & Frost (1978); Strickland (1979); Frost & Klein (1979, 1984); Henniger (in press); Myers (in press); Winter (in press); and Hutt (in press).

Such studies of the processes of play allow clearer understandings of how children play and result in implications for play leaders.

First, the nature of children's play across age and developmental levels is illuminated, particularly with respect to the types of cognitive and social play engaged in by infants, toddlers, preschoolers, and primary age children in various types of play environments. Such insight is valuable in the assessment and design of both indoor and outdoor environments, including material and equipment choices and in playground zoning choices appropriate to developmental levels of children.

Second, the nature and extent of sex differences during play, in varying contexts and across developmental levels, is better understood. Although sex differences in play are obvious, we are only beginning to understand their antecedents or, perhaps more importantly, to understand the dynamics of intervention. Should practitioners attempt to modify play environments and, consequently, change sex role behaviors? If so, in what ways? And for what specific changes?

Third, these studies are contributing to the development of methods and instruments for assessing play behaviors and play environments. These methods and instruments identify physical environments that support or enhance particular forms of play, and they allow comparisons of play behaviors across levels of development.

Functions of Play

Play can be explained by its functions, including cognitive, social, cultural, psychomotor, emotional, artistic, and educational, as studied, respectively, by the disciplines of psychology, sociology, anthropology, physical education, psychiatry, art, and education.

Over the years, a body of research and writing has accumulated within each of these disciplines and occasionally across disciplines, confirming and explaining the dynamic relationships between play and cognition, play and culture, play and art, and so on. For example, Vygotsky (1967) focused on play as an important element in cognitive development and theorized that play was an aid to representational thought. Piaget (1962) tied play to cognitive development in his *assimilative view of play and intelligence*.

> . . . assimilation of reality to sensory-motor schemas has two complementary aspects. On the one hand is active repetition and consolidation, and in this sense, it is . . . growth through functioning. On the other hand, it is mental digestion, i.e., perception or conception of the object insofar as it is incorporated into real or possible action . . . it is by repeating his behaviors through reproductive assimilation that the child assimilates objects to actions and that these become schemas. These schemas constitute the functional equivalent of concepts and of the logical relationships of later development (p. 161).

Theory about play and cognitive development is constantly being modified or supplemented by research. Play serves as a useful mirror of the development of symbolic representation (Rubin, 1982; Rubin & Pepler, 1980). In play, newly developed schemas (mental structures or abilities) are consolidated and strengthened (Fein, 1979; Saltz, 1980), and play directly influences cognitive and social development (Saltz & Brodie, 1982).

Content of Play

Play can be explained by its content. The content of play can be classified into two major categories: concrete materials or equipment, and symbolic representations or imaginary symbols. Equipment includes large, manufactured, fixed structures, such as swings, seesaws, merry-go-rounds, climbers, and superstructures or combinations of such equipment. Electronic equipment includes videogames, television, electronic and mechanical vehicles, and computers. Play materials include manufactured, theme-specific materials, such as dolls and toy vehicles and theme-nonspecific materials, such as building blocks and Tinkertoys. Natural materials include trees, rocks, plants, and fluid materials, such as water and sand. Materials are used in both indoor and outdoor contexts. The larger, fixed equipment is usually installed only in outdoor playgrounds. If the function of play is no more than acting out our animal origins, letting off excess energy, or practicing adult type skills of bygone times, the most primitive types of playgrounds would serve very well. Consider those conceived in this country during the early 1900s. They were arenas of steel and concrete, featuring swings, slides, jungle gyms, seesaws, and merry-go-rounds, arranged in rows and suitable for only one form of play-exercise or practice. Such playgrounds remain the predominant pattern to this day--throwbacks to primitive, outmoded theory and hazardous and ill suited to the developmental needs of children.

In contrast, modern creative or adventure playgrounds accommodate the various processes of play. Functional play is enhanced by provision of exercise equipment. Dramatic play and symbolic representation are encouraged by a wide range of loose parts or portable materials to be used in combination with large structures, such as play houses, superstructures, and stripped Volkswagens. Construction play uses tools, pieces of lumber, and building blocks. Organized games, such as football and soccer, are played on separate flat, grassy areas, and games such as hopscotch and basketball are played on special hard surfaces. The same playground contains storage facilities for art, music, gardening, building, and other creative materials. Social processes are also enhanced. Solitary play occurs in out of the way, partially private areas; associative play and cooperative play in wheel vehicle play, sand and water play, play houses, and in organized games.

Conclusions

Play is a multifaceted phenomenon and, as such, is the subject of inquiry in many disciplines including psychology, anthropology, sociology, child development, physical education, and education. None of these disciplines has explored the qualities of play in sufficient depth or exactness to develop a complete explanation of play. Each, however, has made substantial contributions toward this end, and the rapidly accumulating body of information gives a substantial basis for proposing an integrated theory of play.

There are numerous advantages of such a theory. A fully developed integrated theory of play can provide a comprehensive description of the qualities of play, point out interrelationships between those qualities, open up creative possibilities for the design of play environments, and serve as a sounding board or test for selecting play materials and for designing indoor and outdoor play environments.

Certain dimensions of play are commonly examined across disciplines and each gives a partial explanation of play. These dimensions include the characteristics of play, the motives of play, the processes of play, the functions of play, and the content of play. Examination of these interrelated dimensions can lend depth and breadth to understanding play and can result in a comprehensive, utilitarian, and unified view of the phenomenon.

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PRESCHOOL CHILDREN'S TONAL KNOWLEDGE: ANTECEDENTS OF SCALE

Lyle Davidson

Whatever our current level of musical expertise, we probably mastered the rudiments of our musical language during our preschool years. How did our musical abilities develop to a level that by the time we were 6 or 7 years old, we could learn and sing recognizable songs, invent or compose songs on the spot?

I would like to review the shifts in our knowledge of pitch relationships that occur during those years when so many important changes in musical understanding take place. This review is based on an analysis of approximately 600 songs that were collected in a longitudinal study of nine children at Project Zero. Collected systematically for 5 years, while the children were between the ages of 1 and 6, these songs show us much about the beginnings of musical concepts and behavior.

The songs of preschoolers are important. The mature performance of a song requires the use of highly sophisticated knowledge and skills that have their origin in the preschool years. Surprisingly, perhaps, the level that children reach by the age of 6 or 7 may represent a peak in normal musical development. That peak, for most people, may not be actively developed further. If this is the case, then understanding the background and scope of a 7-year-old's musical ability makes it possible to comprehend more fully the musical skills of adults, and understanding the musical grasp of the preschool child provides perspective for the levels reached by the 7-year-old.

At present, there are more questions about song acquisition than answers. How does a child develop the ability to coordinate the pitches of a song like "Happy Birthday"? How does a sense of pitch become refined? Do all children follow the same path in their development? Can we define different levels of tonal knowledge that are consistent within a population? If so, can we ascertain a sequence of levels within that population? Can we look at children's songs in ways that reflect their understanding and not simply reflect how adults customarily analyze melodies?

Even in simple songs, children use pitch, but we want to know more than that. We want to know how the cooing of a 1-year-old becomes the discrete scale steps of the 7-year-old. It normally takes 4 or 5 years of singing experience for a scale to become a useful scheme. That it requires so much time to develop suggests that scalar knowledge may be the capstone of a whole set of subskills. What might some of these subskills look like? How will they show up in the context of a song? These are some of the questions that are of interest to musicians and researchers alike.

In my attempt to address these questions, I will first consider the minimal prerequisites of scalar knowledge. After discussing some of the factors that support scalar knowledge, I will turn to questions raised by the most common methods of musical analysis. I will attempt to show that those methods fail to provide a useful measure for studying the pitches of children's songs. Finally, I will propose a way to consider children's songs from a child-centered perspective.

Factors Involved in Scalar Knowledge

We have many expectations about the pitch materials of songs. Based on the musical vernacular of our culture, we expect that the phrases of a song like "Happy Birthday" will have a specific up-and-down motion (i.e., melodic contour). Research shows that transformations of the contour of phrases make it difficult to identify the source song (Deutsch, 1972; Dowling, 1978). Furthermore, we may expect the direction of the contour, ascending or descending, to be linked to specific contexts. For example, in general, final phrases feature descending contours.

In addition to the contour pattern, we expect that the specific pitches will be linked to one another in such a way that the influence of a single, specific structure controls the entire tonal space. Krumhansl (1979) has demonstrated the powerful ways in which scales organize our tonal knowledge. Scales (or keys), that is, some way of musically organizing the tonal materials of a piece, are assumed by musicians and researchers to be the central issue in music.

In order for a scalar structure to exist, there must be a degree of stability among the individual pitches of the song, similar to the stability of a regular pulse when considering the rhythm of a piece. In contrast to rhythm, however, where two or three pulses may be enough to establish stability, a surprisingly high degree of redundancy is necessary before a scalar structure is formed. Before a scalar structure is perceived, the individual pitches of a melody have to be recognizably identical. Any deviations in pitch must occur in a way that the identity of the pitches remains easily recognized as a frame of reference, so that the same-different classifications that support a scalar structure can be easily made. This highly stable system of tonal relations underlies most of the music of our culture.

In summary, the tonal dimensions of melody are dependent on a high degree of stability at a local level. The focus on stable pitches, making specific tonal structures possible, has led to certain assumptions about the nature of musical development and achievement. These assumptions have become an integral part of different analytical methods.

Ways of Viewing Children's Music

Musicians have developed various ways of viewing pitch relations in melody: for example, (a) keeping tallies of the intervals used; (b) making a structural analysis by categorizing the notes along a hierarchical dimension (following the theories of Schenker); (c) recording the size and characteristics of "chunks" or phrases of melody (the grouping analysis of Tovey); and (d) classifying the phrases or melodies according to their contour (a common form of analysis in ethnomusicology). These analytical tools have been developed through consideration of examples that reflect mature musical thought. When considering any of these theories, we should keep in mind that none was developed with children's musical productions specifically in mind.

Analysis of Intervals Used

This form of analysis is often used when describing music of various styles, whether children's songs or Schoenberg's songs. The usefulness of this method when considering the songs of children can be deceptive, however. On the basis of only the intervals, two very different productions can appear to be alike. This could be the case for a wide range of musical literature. For example, the results of Ortmann's random sample of intervals used in representative lieder of the 19th century show that, not unlike the songs of children, intervals of steps and thirds are featured. On the basis of this measure alone, how do we tell them apart? On the basis of intervals alone, it is difficult to differentiate between the tonal language of the songs of children and the music of the adult culture.

If this is the case, why is this analytical method used? One reason may be that the smallest logical unit of analysis, the interval, is assumed to be the smallest appropriate psychological unit. That is, we fail to distinguish between analytical units within the domain and the organizational units with which we grasp the song. These two types of units are not necessarily the same. Consider the problem of analyzing water. Describing its elements as two atoms of hydrogen and one atom of oxygen, just because we can, does not mean that we are providing the best description of the characteristics of water. Somehow H_2O fails to capture the properties of the medium we enjoy when swimming. Similarly, a list of intervals can fail to capture important aspects of melody.

There is a second problem with the use of interval tallies as analytical tools. Generally, when making tallies of intervals, we assume that the intervals are drawn from a set of preexisting stable relationships. That is, when we hear pitches, we assume the presence of a diatonic scale or template from which the intervals are drawn. However, do we have evidence to support this assumption? In the case of children's songs, what evidence would support it? What evidence would be both necessary and sufficient? How can we distinguish the pitches produced by the physical fact of extending vowels as long values from those pitches that are the result of or are based on scalar relationships? I suggest that, where preschool children's songs are concerned, there is little evidence that the melodies are made from a collection of diatonic notes organized as scales.

Linear Analysis

Making a linear analysis of children's melodies is possible, but doing so would violate basic assumptions of the theory. The analytical method places a high value on the harmonic factor, which results only from a high degree of musical sophistication (Narmour, 1977). By means of a technique of reduction, the theory demonstrates that a few basic patterns control the tonal motion of the entire music. These analyses show that the music of a few composers share these patterns. Since these patterns, found in the middle levels of reduction, are assumed to distinguish between degrees of talent, it should be no surprise that the songs of children fail to demonstrate such adult-oriented structures. If perspective in drawing were a primary criteria for analyzing children's art, our perspective of their productions would be very different. Similarly, holding a child's song up to the music of a master for comparison may not tell us much about the musical understanding of the child.

As with the interval analysis, it is an underlying premise of this analytical method that the music is based on scalar knowledge or, at least, stable pitches. Again, we must be careful about what we are willing to accept as evidence of such knowledge.

Grouping Analysis

Observing the phrase structure of a child's song may be a necessary part of analyzing the song. However, focus on the grouping or "chunking" of a continuous performance into related parts will not necessarily tell us much about children's tonal knowledge. Furthermore, such an analysis does not differentiate among various literatures to a useful degree. All musical productions appear to use phrases of various lengths. Since children's songs are linked to the text, the length of phrases may be correlated with the ability to say the text and not with the growing ability to sustain tonal relationships over longer periods of time. Thus, when we see that children sing songs with longer phrases, it may be because of issues related to text rather than issues that are musical in nature. Strong evidence supporting this would show that, over time, the length of songs in which the text is controlled (i.e., standard songs) is the same as that of songs without a similar control (i.e., their invented songs). Findings from the Project Zero study show this to be the case.

Contour Analysis

A comprehensive review of methods of melodic analysis used by ethnomusicologists shows a heavy reliance on descriptive analysis of melodies and melodic thinking (Adams, 1976). However, these descriptive systems tend to suffer from being either too lean and differentiating too little or too rich and differentiating too much. For example, a classification by simple contour (e.g., ascending, descending, arch, or mixed) fails to differentiate sufficiently among various types of melodies, phrases, and song types (LaRue, 1964). In contrast, a classification, such as Kolinski's (1964), relies so heavily on details of contour that the number of contour types becomes too large to easily construct a system that allows generalization. Also, there is no clear means within this system to measure the growth of tonal knowledge.

Closing this discussion of methods of musical analysis, it is clear that none of them, by itself, provides a powerful way of revealing children's knowledge of tonal structures. Some, in their adherence to the surface events of a given melody, fail to differentiate among the changes that children's musical productions undergo during the preschool years, since they cast too coarse of a grid to catch the small transformations that characterize various developments. Others, in their abstraction, often fail to retain enough features of the phenomenon that one can effectively work backward to the songs being analyzed, that is, recognize the instances from which the analysis started. Each of the approaches, to be useful for the analysis of children's music, needs to be transformed into a more robust theory and developed along the model of a psychological theory.

A successful theory of tonal knowledge will avoid being lost in details of individual songs, on the one hand, and avoid skimming over the surface in quest of perceptually ambiguous structures, on the other hand. It will provide a sufficient description of the conditions of melody that one can distinguish among various types of tonal structure without making each type a special case; at the same time, it will provide an effective procedure for realizing the form and content of individual melodies.

Other Attempts to Analyze Tonal Knowledge

Attempts to account psychologically for melody are not new. Most of them, however, consider melody from the perspective of perception. Ortmann's classification (1934) of melodies typed melodic motion as either conjunct or disjunct and described interval size. Others have followed this classification with a developmental model in mind. Drexler (1938) postulated a developmental order of melodic perception and production. Specifically, the smaller intervals are grasped first, and the larger intervals appear only later. This seems closer to one's intuitions of development than simple descriptions of interval size.

There is more to melody than intervals, of course. Other musical dimensions have been considered in systematic ways, and the results of such studies are useful. The work of Dowling (1978) and others shows that certain aspects of melody (such as contour, interval, and pitch) vary in importance when we perceive melodies.

Turning to melodic production, Werner (1948) reported that older children's imitation of melodies revealed distinct levels of achievement. In his earlier work with preschoolers' production of invented songs, he reported four levels of tonal knowledge: (a) an ur-motif of a descending third; (b) an ascending and descending motif of three tones; (c) an expansion of range to a fourth or fifth; and (d) the ability to end on a note other than the lowest. Recent research supports Werner. Preschool children are found to use characteristic melodic contours in their invented songs (Dowling, 1983). The repetition of two or three of these characteristic phrases and an optional closing phrase is common in invented songs.

These findings, however much they help to point us in the proper directions, do not provide enough detail with which to make a thorough description or a functioning theory of how tonal knowledge is acquired. For that, we need a developmental theory of some scope.

A Developmental Theory of Tonal Knowledge

What will a developmental theory of melody and pitch look like? What will allow us to distinguish among theories of various strengths, sorting out the more powerful from the less powerful? There are at least four attributes that could help us make such distinctions.

First, a developmental theory of pitch production will help us account for errors of pitch made in singing. It will enable us (a) to explain the occasion of an error (i.e., when an error might occur), (b) to predict what the error will consist of, and (c) to anticipate what will replace the model.

Second, it will allow us to account for individual differences in performance. This means that we will be able to distinguish among a repertory of melodic units and to assess the ability to form and use the units in the context of an integrated whole. In addition, we will be able to assess the ability to symbolize common characteristics that form the distinctive features of melody, for example, contour, length, and speed. Finally, when accounting for individual differences, we will need to account for the pull of specific figural effects, such as contour and speed.

Third, a developmental theory will provide a map of the process of acquisition of the requisite skills. It will have a developmental component that will allow us to assess and classify common levels of competence or ability. Although one might argue that this is, indeed, the aim of developmental psychology, such a focus may also be useful for education.

Fourth, I would like to see the theory applied in education. It would specifically allow us to translate the findings of the researcher into the practices of the educator. In short, it will be broad in application and will not be limited to laboratory situations; it will be observable in a real world context of use.

The Project Zero Study

Before going into closer detail, let me outline the general findings of our research. We saw nine firstborn children twice a month, starting when they were 1 year old and continuing until they were 6 years old. Their songs and musical performances were tape-recorded and later transcribed by two musicians. We analyzed their standard and invented songs, looking at rhythm, pitch, and song structure (Davidson, in press). The examples reported in this paper are songs sung by the children in the study.

As a result of the analysis, we have been able to distinguish among three levels of song singing: the first features rhythm, the second features melodic contour, and the third features stable pitches within the phrase. At first, the youngest children appear to be able to grasp only some of the words. These words function as more than labels for the song; they stand for the entire song. For example, "E I O" can represent an early version of "Old MacDonald Had a Farm"; similarly, "A B C" can represent the entire "Alphabet Song."

This first grasp of song includes a refined rhythmic shaping, in which the child begins to match the rhythm of the song in its model form. This occurs rapidly, after the child is able to perform some of the words of the song. Nevertheless, there is a short period of time between the acquisition of the words and the achievement of the rhythmic surface of the song. This constitutes the first level of song knowledge.

The second level of song mastery includes the ability to match the contour of the model song. Everywhere we turn, we see evidence of the power of contour as an organizing and processing strategy. The second level of song mastery shows that children reproduce the contour of model phrases but not yet the exact pitch relationships that make up each phrase. Thus, the songs of children at this level lack a stable tonal center and feature intervals that are only approximations of those in the model song. Each phrase of the song contains pitches that lie outside the scale on which the song is based.

During the third level of mastery, the interval relationships and pitches of each phrase are increasingly controlled. At this level, the words of the song and the rhythmic shape of its phrases are relatively secure and stable, although the pitches are still not exactly those of our Western art music. The child first approximates the rough outline of the phrase or song and later maps the exact pitches with increasing accuracy. The pitches across phrases are not yet regulated by the scale but are relatively accurate within the context of a single phrase.

Contour Schemes: A Child-centered Unit of Analysis

Our work has taken us further than these broad characterizations. We have a much more detailed understanding, especially about the nature of preschoolers' tonal knowledge. The concept of contour schemes, which refers to specific tonal structures that preschoolers appear to use in their standard and invented songs, has been central to our attempt to construct a theory of tonal development.

As we have seen from the discussion of theories of musical analysis, one of the reasons that the mainstream of melodic analysis is so confused is that the analysis is often carried out on an inappropriate level. When analyzing children's songs, as well as any other music, it is necessary to choose an appropriate level of analysis. One wants to stay between merely coherent abstractions, on the one hand, and too many details, on the other hand. If one studies melodic development by breaking it into isolated intervals, one loses the coherent motion of the melody; conversely, if one focuses on the contour motion of melodies, one then misses the tonal content. The key to understanding the development of tonal knowledge through the analysis of children's melodies lies in the identification of a unit of analysis that simultaneously represents the motion of the melody and its tonal content. Such a unit will necessarily be a simplified and generalized form of a fully developed melodic phrase.

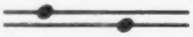
Our analysis shows that children sing just such melodic units. These units or patterns are found to be stable across various contexts of activities, ages, and songs. The patterns are best characterized as schemes, since they can be thought of as the musical equivalent of action patterns. Among the characteristics of contour schemes, two are fundamental: (a) they contain an interval that functions as the boundary of the top and bottom of the space that is defined, and (b) the two extremes of the interval are connected in one of two ways (i.e., either by leap or step).

Contour schemes are extremely local units of melodic organization. Contour schemes are not scales, because there is no over arching tonal organization. At the same time, contour schemes are more than interval collections, because they carry the motion of the melody. The presence of such stable tonal structures, prior to an understanding of scales, suggests that contour schemes may be precursors of tonality, which emerge only after a stable organization of a more comprehensive type is established.

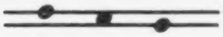
Contour schemes, then, are identified by the size of the framing interval, which identifies the top and bottom boundaries of the unit, and by the way that the boundaries of the interval are connected. Each of the levels contains two steps, reflecting the way in which the boundaries are connected (see Figure 1).

Levels 1a and 1b: Contour schemes of a third

Level 1a, leap: A high-low motion with an unfilled space between the boundary notes.

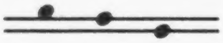


Level 1b: The same boundary with the intervening space filled with stepwise motion.

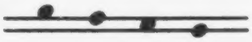


Levels 2a and 2b: Contour schemes of a fourth

Level 2a, leap: Level 1a with a step added (either on the top or the bottom).

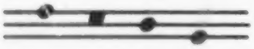


Level 2b, step: The same boundary with the intervening space filled with stepwise motion.

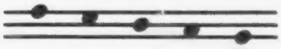


Levels 3a and 3b: Contour schemes of a fifth

Level 3a, leap: Some combination of levels 1a and/or 1b which outlines an interval of a fifth.

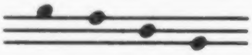


Level 3b, step: The same boundary with the intervening space filled with stepwise motion.



Levels 4a and 4b: Contour schemes of a sixth

Levels 4a leap: Some combination of levels 1a and/or 2a which outline an interval of a sixth or a seventh.



Level 4b,step: The same boundary with the intervening space filled with stepwise motion.

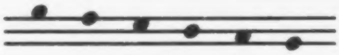


Figure 1. Levels of contour schemes.

Figure 2 shows the use of the first level of contour schemes in a standard song. In this and the following figure, the top line shows the child's version, while for comparison, the bottom line shows the pitches of the model song. Between the two staves are the contour schemes that the child uses in her version. In Figure 2, Heather, at the age of 1-1/2 years, sings her version of the "Alphabet Song."

It is important to notice that her version of the song consists of just two phrases and five of the 26 letters. In addition, the discrepancy between the contours is significant. Although the two phrases of the model song go up and then down, Heather is unable to reproduce that melodic contour. Finally, her vocabulary is limited to a single contour scheme, that of an unfilled third, the first level of tonal knowledge. This descending third plays an important role in the future development of pitch knowledge. Its top and bottom pitches become the boundaries that mark a high and a low point in a contour. This high and low point becomes an important reference from which all later pitch relationships may be measured; this small tonal space becomes the basic unit from which all subsequent units emerge.

Figure 3 shows a typical, child's version of "Row, Row, Row Your Boat." There is much about this version that is close to the model: The phrases of the song are sung in order, the contours of each phrase are correct, the words are all relatively clear. However, this 3-1/2-year-old has a great deal of trouble reproducing contours that exceed the range of a fifth. The third phrase should span an octave, from f# to f#, but Amy compresses that range into a fifth, from d# to g#. This suggests that her internal representation of pitch is limited to contour schemes of thirds, fourths, and fifths. There is another point to be noticed. The second phrase should be sung with the contour scheme of a fourth, but she expands the range into a fifth. Such a compression of wide ranges and expansion of narrow ranges into inappropriate contour schemes is characteristic of the process of assimilation and accommodation that continually takes place while developing the rudiments of tonal understanding or later when learning a new song.

As Figure 4 shows, a newly acquired level of tonal understanding, in this case the contour scheme of a fifth, is often generalized across a variety of different contexts. In the first phrase, the leap of a seventh is compressed to a fifth; in the second and third phrases, the stepwise up-and-down motion is expanded into a fifth, which descends only. Later, as the repertory of contour schemes is restructured to integrate the latest acquisition, an increasingly accurate version of the model will be produced.

What does all this show? In general, the path of development runs from a loose rendering of a song, by means of a single contour type, toward a more specific rendering of a song, as a set of differentiated contours and specific pitches. The task, which the child faces when he or she attempts to match or imitate the modulations of the voice while singing, is not what adults might expect--matching the pitches of the song. The task, from the child's perspective, is essentially that of constructing a means of measuring what is initially an undefined and unarticulated vocal space. The child, unlike an adult, has no set of convenient measures of equal-tempered steps and intervals. Instead, he or she has only the exaggerated ups and downs that may have been first explored as factors of speech. Children must develop a means

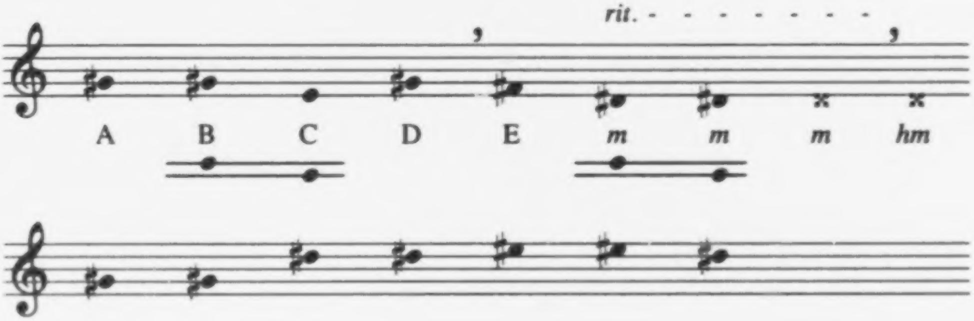

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Figure 2. Heather, 1 year 6 months old, "ABC Song."

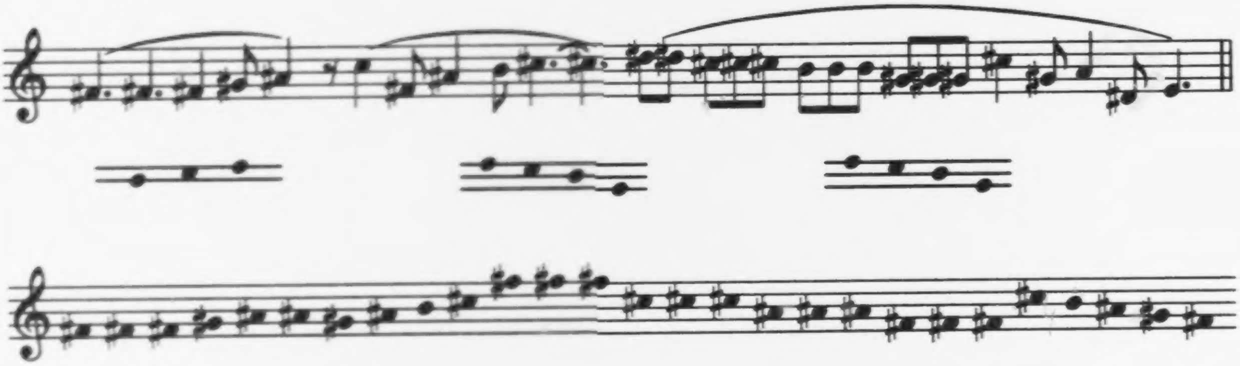

Figure 3. Amy, 3 years 6 months old, "Row, Row, Row Your Boat."

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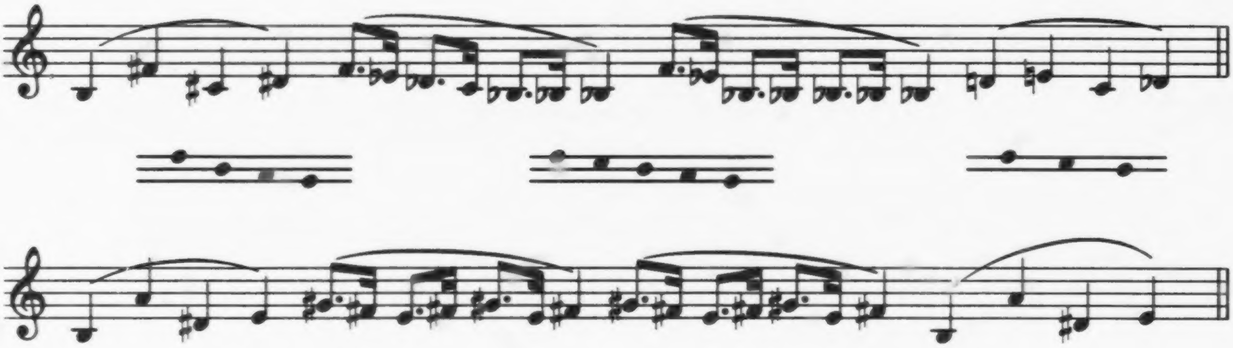

Figure 4. Jeannie, 4 years 8 months old, "Goodbye Doggie."

of orienting themselves in a tonal space and of measuring and defining the space available for song singing—things that are related to, yet very different from, the speaking voice.

Throughout the development of tonal knowledge, there is a consistent pattern. Once a set of high and low boundaries has been established and integrated into a stable contour scheme, that scheme is used in relation with others to reflect more accurately the tonal material of a given song.

At the same time that contour schemes expand the tonal vocabulary of the child, there is an increasing ability to differentiate the tonal space in fixed terms. At first, in both standard and invented repertories of songs, there is little possibility of returning to the same pitches, as in Figure 2. Every tonal unit is controlled by a simple local rule that regulates only "higher than" or "lower than" relationships. With development, there is an increasing ability to restrict pitches used in a single phrase to the number appropriate to the given contour scheme; for example, a contour scheme of a fourth will increasingly use only the same four notes over all its repetitions within a given phrase, as in Figure 4. The ability to carry this set of specific relationships across phrases shows an advanced level of understanding, and it tends to appear relatively late in the preschool years.

With regard to individual differences, our findings show that some of the children tend to progress from inventing to copying. Upon observation, it appears that invention precedes imitation (Davidson, forthcoming). It frequently happens that, when asked to sing a new song, children will first use the earlier-acquired contour schemes (as in Figure 3 where the contour scheme of a fifth replaces a contour scheme of an octave) and will subsequently expand the tonal space until the appropriate match to model is achieved. Adults also perform this way when learning new songs.

By the age of 6, the child has a grasp of tonal space that is close to that of the adult. That is, the child is often able to sing songs in one key, providing the song does not modulate. This indicates the ability to form stable tonal relationships over a span of time, to monitor the ongoing performance in anticipation, and to make representative songs that others can recognize.

As a developmental theory of tonal knowledge, the concept of contour schemes meets the expectations set out earlier. It provides a vantage point for errors, which makes it possible to use them as windows on understanding and development, not as simply mistakes. It allows us to see individual differences among children. It reveals whole sets of unsuspected structures that are antecedents of more mature forms of tonal knowledge and shows them to emerge in an ordered sequence. This theory clearly places adult conceptions of tonal knowledge in a different light, since scales cannot now be seen simply as either tunes of one direction (i.e., straight up or straight down) or as collections of intervals. Instead, scales can be seen as superordinate structures that coordinate the more local, tonal structures represented by contour schemes.

The theory of contour schemes relates directly to two well-known educational programs: the ear-training pedagogies known as the fixed-do solfege and the Kodaly method. From the start, the solfege (fixed-do) training assumes a working system of contour scheme knowledge; it proceeds by first building a stable internal reference system for scales and by later building a stable and reliable pitch memory. In contrast, Kodaly training starts with contour scheme knowledge and knits it into stable scalar orders. It rehearses contour schemes, such as sol-mi and la-sol-mi, as musical primitives, in order to provide children with some discursive knowledge (labels for intervals) with which the child can build strong and independent internal references for pitch relations.

As a theory of children's tonal knowledge, the concept of contour schemes shows that children construct their knowledge of tonal relationships in highly ordered ways, although not in ways that adults would necessarily expect. Here, the parallel to language is strong, for the study of language acquisition has also revealed unexpected patterns of development. Such parallels as occur between development in language and development in music can carry broad implications for how we view preschoolers' musical knowledge and productions and, thus, for how we consider their education and training.

ACKNOWLEDGEMENTS

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HURRIED CHILDREN—STRESSED CHILDREN

David Elkind

In contemporary America, children and teenagers are being hurried to grow up too fast and too soon. The short-term consequence of this phenomenon is an alarming increase in stress-related behaviors among children and youth. The long-term consequence can be even more severe, in that young people may move into adulthood with an impaired sense of self and personal identity. In this paper I will document the prevalence of hurrying in contemporary American society. Then I shall consider the reasons that children are hurried and elaborate the arguments for why such hurrying can be harmful to young people. Before turning to those issues, however, it is important to put the discussion into historical perspective.

The History of Hurrying

Contemporary society is not the first to hurry children to grow up fast. In medieval times, children were dressed and treated as miniature adults. Medieval society was primitive, and the knowledge and skills one needed to function as a child were not far different than those one needed to function as an adult. Farming skills, animal husbandry, crafts (such as weaving, sewing, carpentry, metal working), and the like could all be learned by young people. In primitive societies, differences between children and adults were determined mainly by physical and sexual maturity rather than by social and psychological development.

With the intellectual awakening of the Renaissance and the Enlightenment, the rapid expansion of commerce and the discovery of the New World, and the decline of monarchies in favor of democratic modes of government, Western societies became much more complex and differentiated. The accessibility of knowledge to all social classes, made possible by the printing press, added greatly to this cultural elaboration. In more complex societies, the skills and knowledge needed to be a responsible and contributing adult are not coextensive with those learned in childhood. The more elaborate, variegated and differentiated the society, the more complex, variegated, and differentiated are the skills required to function adequately within that society.

Not surprisingly, astute and socially conscious writers, such as Comenius and Rousseau, recognized the difference between child nature and the demands of a complex society and suggested ways in which young people could be best inculcated within that society. However, it was not until the industrial revolution that the need to educate all of the young came to be generally recognized and accepted. In the 19th century, special attention to the educational needs of young children was evident in the founding of the first nursery schools and kindergartens and in the writings of Robert Owen, Pestalozzi, Froebel, and Montessori. More recent writers, such as G. Stanley Hall, Jean Piaget, and Erik Erikson, have elaborated the special character and the special social, educational needs of adolescents.

Social history, however, is never a simple, straight-line progression. While Pestalozzi was creating a series of child-centered schools in Europe, the first English nursery schools were some of the worst examples of hurrying, with even 2-year-olds being taught their letters and their numbers. At any given time there are multiple crosscurrents and opposing tendencies within any given society. Enlightened attitudes toward children and youth can exist at the same time and in the same social milieu as barbaric attitudes. The children Dickens wrote about lived at the same time that British children in the upper classes were well cared for and well educated.

Overall, there was a movement from the end of the Middle Ages to the 19th century toward a more enlightened view of childhood as a special period that was not coextensive with adulthood. As suggested earlier, political changes also contributed to the gradual recognition of the special needs of children and youth. The advent of democratic governments—mightily stimulated by the writings of Rousseau—in Western Europe and in the United States contributed to the enlightened attitude towards children. In a democracy, literacy was a necessary prerequisite of an informed electorate. With the establishment of democratic governments, the pressure for universal education for all children became more and more evident. It led to the provision of public and publicly supported schools in all parts of the Western world.

Law, as well as public education, symbolized society's recognition of the special place held by children and youth. The child labor laws, passed by all states except a few by 1914, spoke out against the vile exploitation of children in factories and sweat shops. Laws that regulated the age at which young people could drink, vote, and be drafted in the army came to be regarded as emancipated; they were written and became embedded in our ways of thinking about children and youth. The age of consent was a clear signal of society's readiness to punish those who abused a young person's sexual inexperience.

Over the last several centuries, therefore, societies have moved increasingly to the recognition of the special needs and limitations of children and youth. In the last 100 years, a science of child and adolescent psychology has emerged to document both the strengths and the limits of children's evolving physical, emotional, intellectual, and social growth. As society has grown ever more elaborate and differentiated, so too has our knowledge about child growth and development. Ideally, such knowledge and information would be used to better prepare young people for the variegated roles of adult society. As we shall see, however, this has not always been the case.

The point of this all too brief and condensed history is merely to highlight the point that in advanced societies, such as our own, psychological adulthood has become sharply differentiated from physical maturity per se. In contemporary society, the attainment of psychological adulthood has to be regarded as comparable to the attainment of a profession. To be a successful adult in a modern society requires a complex of intellectual, psychological, and social skills that were not even imagined in primitive societies. Even the most simple and routine jobs, such as that of a service person at a fast food restaurant, require a number of social, mathematical, and linguistic skills that are the product of extensive learning. A young person without these requisite skills would not last an afternoon at such an establishment.

It takes time, effort, and guidance for young people to become adults in our society. Meaningful, mature adulthood in our society is not something young people can acquire immediately or by default. That, in short, is the main problem with the hurrying of children into adulthood that we see today. The problem becomes clear when we recognize that in our society becoming an adult is not different than becoming a lawyer, doctor, teacher, or whatever. We cannot hurry professional training. In fact, the trend has been in the other direction; professional training has become more and more extensive because of the proliferation of knowledge. Indeed, we now have continuing professional education for those in the field, so that they do not become out of date and so that they can continually refurbish their skills.

If adulthood is akin to a profession and if professional training is becoming more rather than less prolonged, then what possible justification can there be for hurrying children into adulthood? Such hurrying amounts to running a diploma mill for adulthood. Just as we are all aware of how bad the products of diploma mills are, we should be equally aware of how badly children given prima facie adulthood will turn out. Adulthood must be worked for and earned, or it will lack functional value and, more important, will do harm both to the individuals who acquire adulthood in this way and to the society that has to deal with them.

Evidence of Hurrying

One way to assess the hurrying of young people to grow up fast is to examine what has happened to what might be called the markers of child and adolescent status. As societies become more complex and differentiated, the markers of this differentiation proliferate as well. In American society, it is easy to enumerate the economic markers (clothing, homes, travel, life style), the professional markers (titles, honors, school, and professional organizations), and the age markers (clothing, life style, political preferences, and so on).

As recognition of the special status of children and teenagers became more widespread, markers of their special status emerged. Clothing markers are a case in point. In medieval times, for example, children were dressed as miniature adults. This attitude changed, as the importance of childhood became recognized and clothing markers of child and teenage status were instituted. Around the turn of the century, children were often dressed in small replicas of military uniforms (e.g., sailor suits) that clearly distinguished them from older children and adults. Perhaps as a result, boys eventually were dressed in short pants and were not allowed to wear long pants until they were 12 or 13. In the same way, young girls were not allowed to wear makeup, high heels, or long stockings until they reached physical maturity. In the last decade or so, however, all of this has changed, and young boys and girls are dressed as miniature adults, as in the Middle Ages. Girls as young as 4 to 7 can be seen using makeup and wearing jeans and panty hose. The ubiquity of designer label on clothing for infants shows how far this homogenization of clothing has gone.

It might be argued that young people of the past did not reach physical maturity at the same age they do today. The age of menarche, for example, seems to be at least a year or two earlier now than it was a century or two ago. Nonetheless, this advanced physical precocity--a product of improved nutrition and medical care--cannot explain the disappearance of clothing markers today. For one thing, the so-called secular trend of advancing physical maturity seems to have reached its biological maximum a decade or so ago, and the average age of menarche has not continued to decline. For another, dressing 4- to 7-year-old girls in adult costumes and makeup cannot be explained or justified by the fact that girls today, on the average, attain menarche at the age of 12 rather than at the age of 14.

Other markers have disappeared as well. As the special status of children and teenagers came to be better known and their limitations explained on the basis of innocence rather than upon the inheritance of "original sin," adults noted this innocence and attempted to protect it. A period of innocence was regarded as healthy, a time during which young people could acquire the moral and spiritual strength they would need when they had to confront the evil in the world.

Children in this country, from the middle of the last century to recent decades, were increasingly protected from many types of information that were thought capable of doing them harm. First and foremost, of course, was sexual information. Children were not allowed to see nudity, to read books that described sexual encounters, and so on. To be sure, these practices reflected the Victorian and puritanical values of adult society. Hardly a quarter of a century ago men were arrested if their bathing costumes were not sufficiently concealing. The concern with protecting the innocence of children was thus tied to society's attitude about sex in general. If sexual material was stimulating to adults, then it would be even more so to children. Children, it was believed, would be corrupted by lewd and lascivious material.

With the changing values of modern American society, the playboy philosophy, the psychologies of "doing your own thing," and "letting it all hang out," the earlier puritan and Victorian attitudes about sexuality were overturned. In a wildly distorted interpretation of Freud, people began to believe that any type of sexual inhibition or repression was bad and harmful and that it was a cause of neuroses. The naked body is beautiful, sex is a natural and beautiful act of love, and only repressed and hypocritical people would deny children access to what is most human and most natural.

However, the nature argument runs two ways. We do not live in a state of nature. We control the environment we live in by heating and air conditioning--both unnatural. We grow food with the use of machines, chemicals, and genetic engineering, all of which are unnatural in the sense of not being independent of human actions. One could claim that heart transplants, artificial insemination, airplanes, and cars are unnatural. If we are to oppose the concealment of sexual information from children on the grounds that it goes against nature, much of modern society would also have to be concealed. Modern society too goes against nature. If childhood innocence is unnatural so too is much of the society in which children live. The issue should not be one of what is natural but rather of what kinds of information are most beneficial to the development of a healthy sense of self and identity. It has not been demonstrated that exposure to any and all facets of sexuality is beneficial. Indeed, the evidence from children who have been sexually abused is in the opposite direction.

Educational markers are also disappearing despite more than a century of hard-won victories by early childhood educators. Although the dangers of introducing formal education (involving symbols and the inculcation of rules) have been demonstrated many times over the past two centuries, we are currently being bombarded with programs for young children promising to teach reading, writing, mathematics, gymnastics, swimming, and so on at an early age. Such programs are not initiated only by individual entrepreneurs. Even mighty IBM (International Business Machines) is involved with a "Write to Read" program that attempts to teach children to read in kindergarten despite what we know about the vast individual differences in this age group.

Interestingly, the argument for early educational intervention is again based on the grounds of nature. Young children are "by nature" eager to learn; they learn easily and "naturally" at an early age what they would have to struggle to learn at a later age. If nature is regarded as the grounds for early intervention, however, the aim of such intervention would seem to circumvent it. Many advocates of early intervention claim that they will produce "brighter" or "more intelligent" children. Clearly, the advocates intend and promise to improve on nature at the same time that they are arguing that we must observe and capitalize upon it. It seems to me, you cannot have it both ways. You cannot say on the one hand that you are following nature's mandate by teaching children early and then ignore the mandate on the other hand by making them brighter and more intelligent. If nature guarantees children's eagerness to learn it also guarantees individual differences in aptitudes. Nature cannot at one and the same time be the "good guy" and the "fall guy" in the argument for early intervention.

Other markers of the special status of children and teenagers are also disappearing, and important among these are the image markers offered by the printed and visual media. Over the past decade and a half, we have seen what has come to be called the adultified child--a child or teenager who is presented as wise, knowing, sensitive, and verbally astute. Characters in television series, movies, and books exemplify the new sophistication and adulthood attributed to young people who are presented as being wiser, more knowledgeable, and more capable than their parents. Such portrayals are, again, based on very questionable assumptions. One such assumption is that what is, is good. It is certainly true that young people today (thanks to television, divorce, and declining school quality) are subject to new or more powerful stressors than in the past, but this does not make these stressors necessarily good or healthy. Coping with these stresses does not necessarily make young people better. Too often this seems to be the theme of media productions.

The assumption seems to be that dealing with these matters is comparable to the socially instituted rites of passage that once marked the transition from child to adult status. However, dealing with the divorce of one's parents, with violence and the threat of nuclear war on television, and with sex and drugs on campus can hardly be regarded as comparable to the rites of passage experienced by early generations of young people. Rites of passage (feats of courage among primitive peoples) and intellectual accomplishments among more advanced cultures (confirmation, Bar Mitzvah, school graduation) were socially prescribed and universally recognized markers of having moved into a more adult status. Moreover, preparation for these events was directed and monitored by adults, who also evaluated how well the tasks were accomplished. Dealing with divorce, with the material provided by the media, or with the frustrations of schooling are not prescribed in a formal way by adults; there is no specific preparation for them, and there is no evaluation as to how well or how badly young people have responded to them.

In short, the stresses of contemporary life encountered by today's teenagers are not, despite the wishes of the media makers, rites of passage in the traditional sense. Lacking the universality, the adult guidance and preparation, and the adult evaluation of success or failure, these stresses cannot be seen as the equivalent of socially established rites of passage or as necessarily being beneficial in their outcome. They are stresses that are spontaneous by-products of our contemporary society and are not necessarily beneficial.

Perhaps I can put the matter in a somewhat different way. The traditional rites of passage were stresses for which teenagers were prepared well in advance. Successful passage was a social as well as a personal achievement. A young person who has to deal with divorce has no preparation and, more importantly, no way to know whether he or she has successfully coped. The quick fixes of the media programming are really not helpful guidelines to a young person asking himself or herself whether the stress has been successfully overcome. The stresses young people today are faced with are not rites of passage and are therefore all the more traumatic.

To be sure, there are many stresses in life that people encounter and for which they are unprepared--war, death, disease, pestilence, and much more. Certainly these test one's mettle and give evidence of personal strength or weakness. That is really not the point. What seems to be happening is that media people are assuming that contemporary stresses are rites of passage for which young people are prepared and for which there are objective standards for success. This is simply not the case, and to present adultified children as if they were ready and prepared to face the stresses they are presented with does a serious injustice to youth. It demands of them a maturity they have no way of acquiring.

Why We Hurry Children and Youth

Parents hurry children to grow up fast for a variety of reasons. By far the most overriding reason, however, is the couple's own fears and anxieties, arising from our rapidly changing society. It is clear that we are already well advanced into an information society from what was once an industrial society. Hardly a quarter of our population is now employed in manufacturing, while more than half are employed in one or another service industry.

Technological change is increasingly rapid, and its socioeconomic impact is almost impossible to predict. Television, which was supposed to sound the death knell to movie theaters, has in fact been coupled with an increasing attendance at movies. Likewise, the book industry, also purported to suffer from television and movies, has profited with books on popular people such as Michael Jackson and Jane Fonda. In a similar way, the implications of genetic engineering are just beginning to be imagined. Genetic implants may serve to combat everything from cancer to failing memory; genetic engineering may even help in waste disposal. Other new technologies, such as fiber optics and carbon fabrication, will change the nature of communications and manufacturing. New technologies will soon dispose of the picture tube in television sets and give them the optical fidelity of 35 mm cameras and the sound quality of stereo sets.

Rapid changes have also occurred in the social realm. A decade ago few people would have bet that a woman would be on a presidential ticket, even as vice president. Likewise, the combined numbers of women and minority members now surpass that of white males in the work force. The prevalence of drug use among the middle class is another new phenomenon, as is the prevalence of divorce and of remarriage and blended families. All of these changes are occurring at the same time that the arms race continues unabated and the problems of the environment continue to grow--as waste disposal becomes ever more serious, the air becomes more foul, and water becomes more acid and rancid.

Given this state of affairs, it is not surprising that adults suffer considerable stress and anxiety about the future at the same time that they benefit in multiple ways from our technology. In a very real sense we have never had it so good. At no other time in history could a man of average income travel all over the world in a short time and in considerable comfort; at no other time in history could we be direct witness to events happening anywhere on the globe, even in outer space and on the moon. Thanks to refrigeration we can have strawberries in January and enjoy foods from around the world. Wines are better than ever before. In the United States, at least, we live better and longer today than at any time in human history.

We are caught in a serious dilemma. As could be said of many other times in history, "these are the best of times, these are the worst of times." Parents have children for the same reasons that they have always had them: partly out of instinct, partly for personal satisfaction, and partly for the continuation of the larger society. It is more difficult than ever before, however, for parents to know how to prepare their children for the future or how best to rear their children. They do not want to rear them for a society that no longer exists, and they are not really sure what the future will bring. What to do, what course to take?

One solution, which many parents are drawn to, is to hurry up the educational process. If we train children quickly for society, it is hoped that we may complete the job before the pace of social change has rendered such training out of date. Alternatively, if we treat young people as competent from an early age, maybe this will, in some magic way, prepare them to cope with whatever comes. Indeed, the perception of children as socially and technologically competent at an early age has the benefit of reassuring parents that their children will succeed regardless of the future. The current parental belief that "earlier is better" is the way contemporary parents deal with preparing children for a society with so many unknowns.

These solutions, however, are manifestations of well-known defense mechanisms that we call upon at times of stress. One is rationalization--the plausible but untrue reason for hurrying children; the other is denial--the failure to see or acknowledge the harm that hurrying is doing to children. Although both mechanisms are understandable given the state of the world today, they are really not acceptable. It is true that the physical world is endangered, but by hurrying children, we endanger the social world as well.

Effects of Hurrying on Children

As I have argued earlier, in contemporary modern society there is a considerable difference between physical and psychological maturity. Physical maturity is occurring at an earlier age than it did in the past, while psychological maturity is occurring later because of the social and technological complexity of the society. It takes a wide range of skills to be competent in today's society, and these skills take time, instruction, and practice to acquire. When young people are expected to have skills they have not mastered, they experience stress.

To understand how hurrying stresses young people, we have to distinguish between two types of hurrying and two major types of stress. One type of hurrying has to do with the number and speed of activities we engage in in our day-to-day lives. It is the kind of hurrying we encourage when we tell children to "hurry up" and get dressed, or "hurry up" and finish eating, or "hurry up" and get ready. It is, in a word, clock hurrying. Clock hurrying has to do with the pressures we feel to do something by or at a certain time. In our society we have placed a premium on doing things more quickly than they have been done in the past. We cook more quickly with frozen dinners and microwave ovens; we dress more quickly with zippers and velcro fasteners. And, in a very different domain, successive families of computers have made it possible for us to process information at even faster rates.

The problem is, of course, that not everything is or should be hurried, and this too is becoming increasingly recognized in this country. Side by side with the fast-food restaurants are equally popular, high quality restaurants that emphasize the leisure of dining. Likewise, side by side with our appetite for mass-produced goods of all kinds is an equally strong appetite for fine handcrafted goods. Our appreciation for doing things quickly is balanced by an equal appreciation for those people who take the time to do things well.

To be sure, not everything that is done quickly is slipshod, nor is everything done slowly of high quality. The point is that we still recognize, in this society, that some things require time to be done well; unfortunately, we sometimes forget that fact when it comes to children. Children still operate on a biological time scale that cannot be hurried. Children today, as they have for centuries past, begin to walk and talk at about 1 year of age; they become curious at 2, constructive at 3, social at 4, and rational around the age of 6 or 7. We cannot hurry this evolution any more than we can hurry the proper aging of wine.

When we ignore the normal course of development, we hurry and stress children. We stress them in a clock sense when we ignore the limited energy reserves children have for any 24 hour period. Young children burn up a tremendous amount of energy in a very short period of time. (If you doubt that try following a 2-year-old around for an hour or so.) They also need more time than adults to recoup their energy expenditures. When we ignore the fact that the energy requirements of young children are different than ours, we hurry them in a clock sense. For example, if a 3-year-old is taken first to a baby sitter, then to a nursery school, and then to a day-care center, a tremendous amount of adaptation energy is demanded on the part of the young child. This excessive demand for adaptation and energy expenditure is a clock stress.

When young children are exposed to clock stress over an extended period of time, they begin to develop stress symptoms that indicate the system is overtaxed. Tiredness, crankiness, sleep disturbances, eating problems, and psychosomatic complaints, such as headache and stomachache, all speak to a biological system upon which excessive demands for adaptation are being made. In school age children, these symptoms broaden to include learning problems, excessive tardiness, and absenteeism as well as low mood, lack of motivation, and even clinical depression.

In addition to clock hurrying, we also encounter what might be called calendar hurrying. Calendar hurrying has to do not so much with quantity as with quality. Calendar hurrying has to do with getting young people to learn or to perform the wrong things at the wrong time. An infant who is shown flash cards, a 5-year-old who is asked to take care of himself or herself while the parent is at work, a teenager who is supposed to offer support and guidance to the parent are all instances of calendar hurrying, of being asked to behave in developmentally inappropriate ways.

Calendar hurrying stresses children and adolescents by demanding skills, knowledge, and values that they do not possess. Calendar hurrying, however, stresses children indirectly rather than directly. When presented with problems they cannot solve, they experience frustration and failure. One result of being placed in such a position is low self-esteem. Calendar hurrying affects young people's self-concept and thus renders them more vulnerable to stress in the future as well as stressing them in the present. When adults are too intrusive in a young child's learning, for example, the child may feel that he or she cannot really do anything on his or her own but will always require an adult for guidance and direction. A teenager required to mediate between warring parents may feel that it is her or his inadequacy that is to blame for the ongoing battle.

It is simply a truism that young people with low self-esteem are less able to handle stress than people with high self-esteem. For example, people with low self-esteem are likely to suffer high anxiety when faced with a test, and such high anxiety will often impair their performance. People with high self-esteem, in contrast, may suffer some mild anxiety in the face of a test, but mild anxiety serves to enhance their performance. In general, persons with low self-esteem perceive challenges as more stressful than persons with high self-esteem. Hence, young people with low self-esteem are stressed not because of external circumstances but rather because of their perception of those circumstances. Calendar hurrying thus renders young people vulnerable to stress.

Because so many teenagers have been exposed to calendar hurrying, they are vulnerable to the stresses of freedom, loss, and frustration so endemic in our society. And it is because of this vulnerability, or so I believe, that we have seen an alarming increase in stress-related, problem behavior among young people during the past 15 years. Teenage alcohol and drug abuse, teenage pregnancy, and suicide have all increased at least threefold within this time period. The problem is a serious one and involves a significant proportion of our young people.

Conclusion

Children and teenagers are being hurried today as never before. Clock hurrying, being asked to do or achieve too much in too little time, stresses children directly and gives rise to many stress symptoms, such as eating, sleeping, and learning disturbances. Calendar hurrying, being asked to do the wrong things at the wrong time, stresses young people indirectly by lowering self-esteem and thus rendering them more vulnerable to stress. The result is a dramatic rise in stress-related behaviors in all age groups.

Clearly we cannot halt the pace of technological growth or of social change. What we have to recognize is that social change is less easily adapted to than is technological innovation. The telephone, automobile, television, and computer are being quickly assimilated into our society; but social changes are never accepted as rapidly and always encounter resistance and backlashes. The social changes of the 1960s may have been too abrupt for many to handle. We now have negative reactions to many of the social programs introduced during that period, because people were not sufficiently prepared for some of the social legislation that was enacted.

What we have to recognize is our humanness, that as social beings we can adapt much more quickly to technological change than to social change. If this is true for adults, it is even more true for children and youth. Given the complexity and diversity of modern society, children need, more than ever before, a time to be young in order to prepare for adulthood. We harm ourselves, our children, and our society as whole when we ignore our responsibility for the welfare, guidance, and yes, the protection, of youth.

THE PRACTITIONER INVOLVES YOUNG CHILDREN IN MUSIC

Barbara Andress

The music teacher recognizes that a nursery rhyme can be a natural vehicle for involving children in a variety of music-making experiences. Nursery rhymes have a simple verse with a strong rhythmic pulse and attractive words that are easily performed. Children have certainly placed their stamp of approval on the rhymes passed from one generation to another. The teacher knows that there are many ways a rhyme can be arranged to help children experience and understand different musical settings. The rhyme "Hey Didddle Diddle," for example, can be playfully changed by using vocal inflections and other sounds substituted for certain words:

Hey diddle diddle, the ["meow"] and the fiddle,

The cow jumped $\text{o}^{\text{v}^{\text{e}}\text{r}}$ the moon.

The little dog ["ha! ha! ha!"] to see such sport,

And the dish ran away with the spoon. [Clap hands gradually softer].

The teacher continues by using the new version of the rhyme in a two-part round whereby each group is assigned one specific pitch to sing. A drone-like harmony now becomes part of a more musically sophisticated game. Lastly, the teacher invites individual children to create and add an improvised song to the simple harmonic accompaniment. The lyrics may be focused upon one of the characters in the rhyme. Children could find themselves singing about "a purple cat, with a stubby tail that played a funny song on the fiddle!"

The practitioner functions empirically regarding the constructs of music and age-appropriate behaviors of children. We know that the above nursery rhyme activity can be easily performed by fourth- or fifth-grade children who can sing in harmony. We know that second or third graders can perform a speech canon. We know that a 5-year-old would enjoy speaking the rhyme and substituting the playful words or sounds. We are relatively secure in the what and how of music appropriate for school age children. We are now turning our focus to the preschool child. What of all this is important and can be used by the 4-year-old? What about the 3-year old . . . and the 2-year old?

Music educators have not dealt extensively with this age group; however, we could make some educated guesses regarding what might work. We could, for example, conjecture that a 4-year-old would chant the words and take great delight in adding the funny sounds to the nursery rhyme. The 3 would enjoy the play and, upon repeating the activity a number of times, might respond with many of the words--although in a slightly lagging rhythm. What of the 2-year-old? Now it becomes tougher to guess. Perhaps we should just let the 2-year-old become three!

We could view all the younger children simply as flowers who grow naturally unaided, requiring little care beyond a healthy and somewhat stimulating environment. When they arrive at a certain age, we could then subject them to a few directed musical experiences. Fortunately, we are responsible educators and are reluctant to subscribed to such an aleatoric approach to learning. It concerns us deeply that effective experiences be available for the under-5 population. The crucial question becomes "What is effective and how can we efficiently provide programs that are age- or stage-appropriate experiences for young children?"

Philosophical Premises

There are a variety of philosophical positions from which educators could select in order to solve the question stated above. Taking our cue from the early childhood teachers, we could view the program from one of two extremes. On one end of the spectrum we could hold that this is a rapid, critical time of learning for the young child and assume that he or she is fully capable of handling concepts at an earlier age than otherwise projected. In this approach we could involve children in highly structured experiences with skillful performance as a major goal (e.g., reading or playing an instrument). Those on the other end of the spectrum are also aware of the importance of early learning but are more cognizant of developmental stages and their impact upon certain capabilities within these stages. The latter, a child-centered approach, would involve children in greater freedom of choice and exploratory play activities. Between these two positions, there is undoubtedly a middle group wherein both philosophies become modified and merged.

First, let us examine the performance-based program. Because we are very adept educators, we can find ways to help children play instruments, sing rather involved songs, and parrot a great deal of information about music. In essence, we could press for rather sophisticated performance skills and do those things with younger children that have been effective with older children. If we select this route, we will have ample support; there is great zeal among some parents, educators, and others in our society to involve young children in increasingly more complex learning packages. In our eagerness that infants, 3- and 4-year-old children be able to read, acquire foreign languages, or play orchestral instruments, we have turned many of our pre-school settings into miniature academic institutions. It is not uncommon to find an article in popular magazines about the so-called "Super-baby."

Such articles appeal to parents' drive for wanting their children to become successful. Parents pay large tuition fees for training programs and become armed with activities such as flash card games to be used with their 4-day-old infant. Parents respond with despair and outrage if their child is refused admittance to prestigious nursery schools. The pressure on the child can be intense. I am told that we have a preschool in Arizona that has remedial reading classes for 3-year-olds. I also observed a 2-year-old gifted child who recently appeared on a local television newscast and demonstrated the remarkable ability to read at the fifth grade level. A proud teacher and even prouder parent glowed as the child performed this advanced task. As a final part of the interview, the newscaster asked the 2-year-old what he wanted to be when he became an adult. The child answered, "Anything where I don't have to read!" This is a revealing comment, although I doubt that the teacher or mother heard the statement.

The pressures for early education has led to some tongue-in-cheek comments. A recent item (White, 1984) entitled "Teach Your Baby to Tap Dance Before Birth--Fetal Terpsicology," appeared as follows:

> Dr. Izzy Dora has perfected a technique to fit the fetus with tiny tap shoes that will stretch as the fetus grows. Dora has suggested that since babies cannot talk at birth, they might as well be able to do something entertaining and constructive. Mothers attend weekly clinics where "Shine on Harvest Moon," "Tea for Two," and "Me and My Shadow" are played at high volume. When asked why he had chosen to teach fetuses to tap dance, Dora said: "Classical ballet is much too difficult. There just isn't enough room in there for all those leaps and turns" (p. 7).

Music education has its share of pressure groups who strive for miniature adult musical behaviors in young children. There are programs in which individual children perform vocally or instrumentally at highly sophisticated levels, and we have our "Annies" who can sing with adult, mature voices and can dance with the best of individuals. We have young children who are able to exhibit dazzling proficiency in playing piano sonatas at age 5 and violin sonatas at 3. Should this be a program goal for all? What are the consequences of such an approach? What is the cost to the child? Is childhood being lost?

Too frequently, children who sing with the strident vocal quality needed to imitate the adult voice subsequently gain a damaged or destroyed voice. Many of our children who begin orchestral instruments as preschoolers withdraw from the program. Research has shown that such children are usually no more technically advanced than those who begin instrumental study at an older, more appropriate age.

There are Shirley Temples and young Mozarts in our society. Recognizing that child prodigies are relatively few, we must watch for them and encourage their giftedness. When projecting such goals for all children, however, we continue to be concerned about neglected activities and their being locked into practice and drill. Who are these children trying to please? How much of children's motivation is related to pleasing the parent to whom they are so strongly bonded?

If we place ourselves at the opposite end of the spectrum, we take the philosophical position that the child's learning evolves in a developmental sequence, combined with the interactive nature of an environment. We therefore recognize the significant relationship between the child and the environment and that this period provides a critical link in developmental learning. Accepting that children must be in control of their learning—for they truly are the only ones who know how they learn--is difficult for educators who are accustomed to dictating learning. There is discomfort with unpredictability, and music educators who are accustomed to approaching their subject from a performance level often find themselves unsure of a process, especially when matching pitches or playing an instrument is not the primary goal.

We can leave the child in control of his or her learning, but educators must carefully set the environment in order to maximize learning. The richness and age-appropriateness of the setting are critical for early learning experiences. Also important is the recognition that the environment includes people, space, and objects. Caring educators do not leave children to flounder.

Successful planning of early childhood programs demands that we first become comfortable with children as 2-, 3-, or 4-year-olds. A critical, initial step is an extensive search, piecing together that which our own colleagues and those in other fields have already addressed, to formulate a profile of young children. This process is tedious, complex, time consuming, and will frequently seem to be on the periphery of our true purpose, which is, to involve the child in music. I suggest that this preparatory step is necessary and will result in energy well spent, as such effort is the only way to create a preschool music curriculum that has credence and academic integrity. Our programs must be based upon findings about childhood that have been carefully researched by ourselves and other professionals in the area of education or child/human development. Within these fields we must look at (a) theories of cognitive, perceptual, and motor development; (b) theories of play and social/emotional growth; (c) the acquisition of language; and (d) the biological basis for certain responses. In addition, we must review and encourage research in our own field of music behaviors. Information gained from these many sources will form a complex grid, but the data should contribute to a more coherent view of the way in which the young child is able to function musically.

Developmental Studies

I would like to share with you some various pieces of research that I believe can influence the practitioner's approach. A most important area to be considered when developing a profile of the child is that of cognitive development. The manner in which the young child thinks at various stages of development is of paramount concern when shaping the content of what can be taught and how it should be packaged. A great deal of literature exists in this area, and some major sources are the writings of Piaget and the many interpreters of Piaget. There are available published materials (Andress, Heimann, Rinehart, & Talbert, 1973; Zimmerman, 1971) that reflect how the Piagetian information can be applied to preschool music programs. Key information lies in his theories of assimilation, accommodation, and equilibrium, and the child's needs to be involved in tasks such as discrimination, classifying, ordering, improvising, and recalling. These considerations affect how we engage the child and the nature of the response to be expected.

Other helpful information is derived from the area of developmental psychobiology. A study of note in neonate research was conducted by Papousek (1982), who addressed the significance of the mother tongue method used in preverbal parent/infant communication. In simple terms, Papousek refers to the use of baby talk, stressing its importance as the most relevant source of musical stimulation in the infant's daily life. Baby talk is universal in its usage; even nonsinging parents use it and can hardly suppress its musicality. Papousek describes the musical elements of baby talk:

1. It is simple in structure and contains many invitations to dialogue and/or warnings.

2. Melodic contours are more expressive than normal speech, and they contain enhanced rhythms and word-stress.

3. Its pitch is higher than normal speech, nearer that of the infant's range.

4. Parts of baby talk are sung rather than spoken, and minor thirds (cuckoo call) are used predominantly by parents to attract infants' attention.

5. Rising contours to attract attention, falling contours to calm baby, are used.

6. The child is provided with opportunities to compare his or her own vocal productions with others' (e.g., through imitative vocal play between adult and child).

7. Repetitive musical patterns are consistently uttered by parents (pp. 105-106).

During the first year of life, baby talk is most frequently used, but toward the end of the first year, these elements gradually shade into nonverbal prosodic patterns of speech on one hand and singing of improvised (or traditional) melodies on the other hand.

By taking our cues from the above research on baby talk and improvised song play, we can plan musical activities to include the playing of voice inflection games. These are games that use a strange mix of high, low, loud, soft, and funny vocal gibberish. These playful echo-games often evolve into improvised dialogues, which not only reflect great musical freedom, but, when coupled with toy-box items, or other objects, also result in "Toy-town Operas" enacted by adult and child or a small group of children.

Beyond the Papousek research, we have found in our work that language development certainly holds many cues in our selecting material for the toddler to sing. For example, small children are discovering a multitude of things in their world; they begin to point and label everything. Adults eagerly supply one-word labels, followed gradually with more comprehensive information. During this period (12-20 mos.) one-word songs or pointing songs bring enjoyment to the child.

In our research with children at Arizona State University, we have used a two-pronged approach to the child's acquisition of song. We recognize (a) the child's utilization of traditional songs, and (b) his or her innate skill to improvise songs. In the beginning, traditional songs are used with the 2-year-old and young 3-year-old children primarily to model songs of the culture, not as a significant singing experience by children. The child hears, enjoys, assimilates, and begins to shape the idea that this is a song, something that is a joy to perform and that people do together. Early singing is limited, as participation requires the child to "accommodate to the defining properties of culturally-endorsed songs" (Davidson, McKernon, & Gardner, 1981, p. 303). These properties are often beyond the child's developmental ability. Song involvement may not initially be an act of singing; rather, it is a listening/movement experience on the child's part. Bits and pieces of the words, in addition to melodic and rhythmic patterns, are incorporated as the child develops. Davidson, et al. (1981) refer to these offerings as the "global properties" of song (p. 310).

The child's inherent ability to create songs must be optimally considered for song-making options in the early childhood curriculum. Improvised singing consists of the child playing voice-inflection games that later evolve into early melodies, which are often performed with the broad expressive elements of music: soft-loud, fast-slow, high-low. Our goal at this point is to help children value their own creative efforts, rather than be concerned about accurate phrasing, melodic or rhythmic patterns, and so forth. These activities become an integrated part of the total program as they contribute to language development and other basic learnings. The freedom involved in song improvisation is developmentally correct and the young child is left in control without external impingements of musical structure. This approach requires adults to accept children's efforts as valid musical works, even though their songs may not conform to the adult criteria of appropriately organized melodies.

In forming our profile of the young child, we should examine the developmental theories of play, play research, and their ramifications for setting the musical environment. Because play is the child's major form of learning, it follows that the manner in which the child functions while at play is important to our understanding of the learning process. The research of Parten (1932) and Piaget (1962) is frequently cited and applied by early childhood educators. For the sake of brevity, I am referring to their research only briefly; a more in-depth summary would readily justify the conclusions and implications offered in this paper.

The research of Mildred Parten, who developed a scale of categories describing typical levels of social play among children, reflects a definitive study. Several of the categories continue to be widely recognized today and may be useful in our program planning efforts. They are:

1. Solitary play--a child plays alone and directs the activity separately, without reference to others. This play begins with and centers on self.

2. Parallel play--a child chooses toys similar to those of children nearby, but he or she plays beside rather than with others.

3. Associative play--children engage in overt group play with conversations and exchange of materials. Association, not the activity, captures interest.

4. Cooperative play--children engage in highly organized group play, which involves a division of labor and roles in order to achieve a competitive, dramatic, or material goal.

Parten felt that the trend of these play behaviors was toward the associative and cooperative play as the child grew. However, this view may not be valid in that children have been observed progressing directly from solitary to associative and cooperative play, or alternating their group associative and cooperative play with extended periods of solitary play.

In his book, Play, Dreams and Imitation in Childhood, Piaget (1962) detailed play development in relation to parallel stages of thinking. At the sensorimotor stage of development (0-2 years), the child repeats activity for the pleasure of exercising power. Piaget referred to this period of development as practice play. At the preoperational stage (2-7) of rapid conceptual growth, the child uses representational objects, paralleling symbolic play. At the concrete operations stage (8-11), the child uses ludic (play) activity of the socialized being, paralleling games-with-rules play. Finally, the formal operations stage (11-15) parallels the period when play development ends.

Musical Environments

The manner in which the child is developmentally able to respond to the environment leads me to offer the following summary and to project implications for setting the musical environment.

The Infant/Toddler (0-2)

The profile in early stages appers to be one of a child who predominantly uses solitary and parallel play; the child assimilates knowledge about things with little intent for application of systemization. Capable of symbolic play, which is first centered on self, the child later evolves into play with substitute objects. Toys for isolated play are used, such as items that can be filled, emptied, broken apart, or be put together again.

Implications for music environments. Play areas (tables or play spaces) should utilize special, small spaces that are most conducive to solitary or parallel play behavior. It is important that children are free to move among play areas. Large group areas are available but have limited use.

The following types of materials could be provided within small space areas: (a) small percussion instruments and recordings for pure delight of sounds; (b) manipulative objects that can break apart and be reassembled. One example of a manipulative object is the xylophone puzzle--a resonator-type bell set, combined with a puzzle board for putting-in- and taking-out-play. Another example is the jingle bell puzzle, consisting of multiple, assorted bells that are color coded as to size and sound. Color-coded cups are provided, in which the child places the bell after ringing it. The child's decision may initially be triggered by color, with other discrimination skills (size/sound) developing as part of the repeated play.

The 3-Year-Old

The second stage profile is one of a child who predominantly vacillates between solitary, parallel, and associative play; uses increased vocabulary; engages in role-playing games, uses representational objects; can play with others using games with more order; likes an exact imitation of reality in games; can pretend with other adults or peers; and, demonstrates growing ability toward social play.

Implications for music environments. Continued use of special small spaces allows for solitary and parallel play. Larger equipment and settings are used to motivate associative play. Regularly scheduled music activities should be provided, in addition to role-playing environments, such as a stage for solos or special singing events (e.g., a Jack-Be-Nimble event allows the child to be Jack while the teacher sings the song and children take turns jumping over an imaginary line marked by masking tape).

The practitioner can provide events for associative play by using activities that involve several players. "Music in our Neighborhood," for example, is a teacher-made game using a play-mat arrangement that depicts houses in rows taped to a table. Children play this game by placing ready-made pictures of music events (e.g., a birthday party, rocking a baby, etc.) in the house. Children may manipulate the pictured events and sing appropriate, familiar, or improvised songs as part of the play.

Continued use of puzzle-play items, typical of those suggested for the 2-year-old, is recommended. The more mature child will approach these materials in a more sophisticated manner (e.g., the xylophone puzzle can be played in a fast or slow tempo, with loud or soft dynamics, with teacher, a peer, or alone; the jingle bell puzzle might be used as a classifying game wherein all large, medium, or small bells are placed in their respectively colored cups).

The young 3-year-old participates in the large group but may view the activity as an event between himself or herself and the leader, rather than being consciously aware of cooperating with other members. Children of this age tend to respond poorly to group structures that have even simple rules, such as singing games that require gathering hands to form circles.

The 4-Year Old

The profile of the 4-year-old appears to be that of a child who continues to use solitary, parallel, and associative play, although capable of playing cooperatively with peers, older children, and adults. Cooperative play becomes the predominant form of activity. The 4-year-old possesses skills necessary to play symbolically, and is able to pretend in socio-dramatic play; and is able to direct and use socio-dramatic dialog. Play among these children begins to move toward intellectual experimentation. As Piaget stated (1962), "When there is real curiosity we are no longer in the realm of play but in that of intellectual experimentation" (p. 116).

Implications for music environments. Designated areas should be provided for individual play and inquiry. Children are now quite capable of problem solving, planning events, and cooperatively playing out ideas. Practitioners will need to provide materials that lead toward more sophisticated inquiry such as games that involve matching and classifying sounds. Materials for socio-dramatic play can also be introduced (e.g., play mats that visually depict scenes and characters from operas such as Hansel and Gretel and the "Toreador's Song" from Carmen). Children respond to these musical excerpts by manipulating the characters as they play out the scenes.

The traditional approach to large group activities can now become effective. Children enjoy singing together, they can follow social rules more easily, and are capable of responding with greater musical accuracy.

Summary

Research findings and our observations at this point indicate the importance of shaping programs based on developmental abilities of the child. When planning an age-appropriate music curriculum we need to observe the following: (a) base activities on how the child thinks (often illogically, with single focus); (b) be aware of the manner in which language acquisition influences the nature of the child's song response--from babbling, global properties of song, to more accurate pitch and rhythmic matching; (c) be aware of the child's predisposition to spontaneous song improvisations and nurture these experiences as a means toward maintaining the child's creative tendencies; (d) accommodate the play styles of the child, using settings that allow for playing alone, playing beside others, and with others; (e) be concerned that we do not exploit the preschool child and that we provide experiences important and appropriate for the child, never for the ego-satisfaction of the adult; and (f) know that young children are capable of interacting with and learning about basic musical concepts.

My early childhood colleagues also inform me that an integrated approach to subject matter is important at this level. Reinforcement of other learnings, such as nutrition, self-image, and concepts of colors or numbers could be provided.

Vast numbers of 3- to 5-year-old children are now attending our schools. The Digest of Education Statistics (1982) reported that (a) 2,280,000 3-and 4-year-olds are enrolled in school, which represents 36.7% of the 6,205,000 total number of 3- and 4-year-olds; (b) of the 362,000 children enrolled in full-time Head Start programs for 1980-81, 80% were 3- and 4-year-olds; (c) 13% of all 3- and 4-year-olds enrolled in school were in the Head Start program; and (d) almost half of all women with children under 6 years of age were employed, enrolling more than 7 million children in daycare centers. Early childhood educators know that this group exists. Music educators can no longer deny it.

You have undoubtedly guessed that when working with these children, I find myself committed to a child-centered approach—one in which children are encouraged to solve problems, improvise, make decisions, and explore/play with musical ideas. The results of such a program, where I have been able to observe preschoolers progress through creative song-making experiences with offerings that are most musical, are enormously rewarding. To illustrate briefly, during one of our sessions a 3-year-old created a song with these poetic lyrics: "Little needles in the water . . . little circles on the beach riding . . . ." The child continued, singing an inside "hum-a-long" song. The words were undecipherable, but the intensity of the performance left no doubt that she was creating an important song. The final words were clearly sung, "Said the wind . . . ooooooooo . . . ah . . . in the winter wind." The idea of a small circle of water riding on a beach is lovely imagery for anyone to produce, but it is especially charming when it originates from a 3-year-old child.

I counted myself most successful one day when 4-year-old Megan loudly informed the group, "Today, I'm going to make up a song." I quickly encouraged her and invited the others to get ready to hear Megan's nice song. She went on to say, "My song is going to be soft, and slow, and it's about putting a baby to sleep." Megan proceeded to sing a very soft, slow, rambling melody about a baby. She smiled broadly, indicating the song was ended. We applauded. Megan had planned her song, sang it according to plan, and had made decisions worthy of a sophisticated composer.

I would like to have many Megans as a product of our preschool music programs. Such children dare to be creative, to share, to be involved in decision making, and obviously, they value their own musical efforts.

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STATE OF THE ART IN EARLY CHILDHOOD MUSIC AND RESEARCH

Marilyn P. Zimmerman

Any attempt to outline a contemporary perspective of early childhood music first requires a retrospective look, so that present achievements and practices can be viewed through the lens of past accomplishments and learnings. The last 25 years have seen an increased interest in the systematic study of musical development, just as the systematic study of child development has been a major contribution to the understanding of human development and personality. The study of child development encompasses a variety of disciplines, viewpoints, theories, and methods. Each viewpoint recognizes the importance of interactions between intellectual, emotional, physical, and social growth. Most theories seem to agree that child development is a process that entails sequential levels, phases, shifts, steps, or stages, through which a child's multifaceted growth passes from infancy to youth. There are some psychologists, however, who do not find the concept of developmental stages particularly useful. Van den Daele (1969) presents their positions with a clever ditty:

> Milestones, phases and ages
> render general gauges.
> While periods, levels, and
> stages require pages and pages
> (p. 303).

The lineage of current developmentalists can be traced as follows: (a) the perceptual-cognitive orientation to James Mark Baldwin, Claparede, and Piaget; (b) the normative-descriptive orientation to Preyer, Hall, and Gesell; and (c) the psychosexual-social-emotional referrants to Freud and Erikson. These three groups share a common affinity for naturalistic, observational methods.

Until the early 1950s, child psychologists were clinically, rather than developmentally, oriented and interested in children's perceptions and memories as ends in themselves, and research into the early musical responses of young children reflected this interest. Studies, such as that of Williams, Sievers, and Hattwick (1952), were concerned with vocal range, aural discrimination (between and among pitches and between consonance and dissonance), and rhythmic response. Few attempts were made to tie the findings to any developmental theory or to deduce a theory from the findings. The findings of the pioneer developmental psychologist Heinz Werner and, to a certain extent, of the Pillsbury Studies, are notable exceptions and will be discussed later.

During the mid 1950s and early 1960s, developmental psychologists began to shift their emphasis to perceptual and cognitive development and to the accompanying issues of the transformation and structure of systems, the developmental stages and transitions, and the mechanisms of developmental change. The music educator-researcher followed this trend. Many studies in the field now search for or consider a developmental framework; studies attempt to discern stages or shifts in a child's musical thinking; and they probe underlying psychological processes, such as memory.

It is also gratifying to the music researcher that the development of musical intelligence and musical memory has captured the attention and interest of developmental and cognitive psychologists. Within the last decade, many books, articles, and research reports have enhanced our understanding of the very young child's musical development. As has been seen at this conference, these ideas and insights have informed our practice and undergirded our teaching materials.

Developmental Theories

Jean Piaget

If any one person can be identified as shaping the course of cognitive developmental psychology, that individual is Jean Piaget. His work was given a new introduction and impetus in this country with the publication of Jerome Bruner's The Process of Education in 1960. This publication, which was a report of the Woods Hole Conference on educational reform, outlined the main aspects of Piaget's theory of intellectual development. According to Gardner (1983), Piaget's developmental sequence "is the best worked-out trajectory of growth in all of developmental psychology. While many parts of it are susceptible to criticism, it remains the account of development against which all other formulations continue to be judged" (p. 133). Since many music educators and researchers have been influenced by the Piagetian perspective, we will review key concepts of his theory.

Piagetian theory is a biological theory. It is based on the adaptation of the individual (including genetic programming) in creative interaction with the environment. The interaction occurs as the individual assimilates what can be easily comprehended, even as he or she accommodates to the new and unfamiliar in order to use it. Knowledge, at whatever stage of development, is created by this interaction. Here we find combined aspects of the maturationist and the environmentalist positions. Each aspect--innate capacity and environmental stimuli--is essential to the process, but neither is wholly controlling. The focus is on the child as primary agent in his or her own learnings, development, and depth of understanding. The critical factor is the child's own activity, through which each individual assimilates novel experiences and accommodates self and thought to the experiences. Cognitive behavior is an outward sign of the assimilative and accommodative capacities of the individual. In cognitive terminology, accommodation, with its consequent expansion of an idea or concept, is regarded as learning.

Piagetian theory is a stage theory. It is a theory of cognitive growth that views human intelligence as moving through successively higher stages, from sensorimotor to operational thinking. These stages cut across more than one modality of thought and bring to light important, albeit subtle, commonalities. In Piagetian theory, the sequence of stages is both organismic and experiential--organismic because they unfold systematically and experiential because they are dependent upon environment and experience. The age levels at which the stages occur can and do vary according to particularities of physical, social, and cultural environments.

During the sensorimotor stage, which lasts from birth to 18 to 24 months, the infant learns through perceptions and actions. From isolated, sporadic actions, organized movements and patterns develop and form the basis for early communication. The appearance of symbolic processes both crowns and terminates the sensorimotor period. Through combinations of existing schemata, the child is able to represent the results of an action before the action occurs and to recall the image of an absent person or object. The concept of object permanence is a highpoint of sensorimotor intelligence and crucial to further development. When an object no longer needs to be present in order to be considered or thought about, the child has been freed from the confines of the present and has acquired both a past and a future.

The preoperational stage, ages two to five, covers the preschool and kindergarten years. In the sensorimotor stage, the child knows objects largely in terms of physical manipulation; during the preoperational stage, the child begins to capture knowledge through the symbolic realism of language and play. Perceptions and actions become charged with new meanings and integrated into new structural systems, as the child relearns some of the lessons already learned at the sensorimotor level. Before conceptual thinking can occur, a symbolic version or transformation of experience has to exist. Symbol formation can be diagrammed as follows: experience ←------→ representative imitation of experience ←------→ image of what is imitated ←------→ invention of symbol to convey the image. Here, symbolic play and imitation become important avenues for thinking.

Singing games and chants are the embodiment of symbolic play and imitation, and they help the child move from a sensorimotor experience to a symbolic transformation of it. The language of the chant enables the child to encode information; play enables the child to elaborate an understanding of objects by assimilating novel objects into familiar action schemes. In a similar way, very young children tend to incorporate words of new chants and songs into existing tune repertoires or to add new actions to old songs.

Symbolic play with music, as found in children's chants and singing games, is informative in that it provides an excellent clue to features that very young children find salient in music. These features generally include a predominant rhythm pattern, repeated motifs, and lalling (nonsense syllables). An example of a song that meets all three criteria is "Toodala."

Perceptual dominance of thought, like symbolic play, is characteristic of the preoperational stage. Things are what they seem to be in the immediate perceptual field. This perceptual domination causes the child to focus or center on only one aspect of a situation to the exclusion of other aspects. Because preconceptual thought is centered on immediate and individual perception and action, it is egocentric and irreversible. For example, preoperational children think that other individuals view a situation exactly as they do.

The last two stages of Piaget's theory--concrete and formal operations--do not fall within the purview of a conference on early childhood music. Suffice it to say that the concrete operational stage covers the elementary school years, and the formal operational stage coincides with the beginning of adolescence.

Piagetian theory is a structural theory. In the delineation of stages, Piaget maintains that cognitive structures develop gradually throughout childhood until a coherent system of thinking is formed. The young child's intelligence never stops developing, but certain structures at certain levels and at certain times achieve a relative stability. Each new assimilation and each new accommodation lead to a higher level and a more stable point of equilibrium. Incomplete systems of thought that conflict with each other are enlarged or integrated through these twin regulatory mechanisms. New knowledge results in and leads to a recombination of existing capacities in order to reestablish the destroyed equilibrium. Development is always solidly rooted in that which already exists and is continuous with past experience. According to Bringuier (1980), Piaget stated: "Intelligence is, by definition, adaptation to new situations, so there is a continual construction of structures" (p. 42).

The concept of conservation should be mentioned here, because of the role it has played in music research. Conservation refers to the invariance of a particular dimension of an empirical object under controlled transformations in its other dimensions. During the last two decades, several music research studies have followed the Piagetian model, in which conservation-type musical tasks were designed and administered to children, in order to determine stages of conservation in the development of musical concepts.

Howard Gardner

Using antecedents of Piaget's cognitive theory and Freud's psychoanalytic theory, with its emphasis on affect, Howard Gardner (1973) has developed an elegant theory of artistic development. His prodigious writings in this area have opened our understanding to more specific ways of viewing musical development and planning for its nurturance. In an attempt to integrate affect and cognition, Gardner posits three systems--making, perceiving, and feeling. These systems are present at birth and combine sensorimotor actions and perceptions with affective reactions.

Dennis Wolfe and Howard Gardner (1980) proposed four major stages of artistic development that correspond to Piaget's stages of cognitive development: (a) the child as direct communicator; (b) the child as symbol user; (c) the youth as craftsman; and (d) the youth as critic and full participant in the artistic process. Only the first two stages have a direct bearing on the scope of this conference: the child as direct communicator, from birth to age two, and the child as symbol user, which roughly covers the ages from two to seven. In his most recent opus, Gardner (1983) proposed a theory of multiple intelligences that includes musical intelligence as an automomous intelligence.

With this background, which has sought to establish that early childhood music education is firmly rooted in developmental theory, let us now turn to the ways music researchers consider musical development and musical intelligence.

Musical Development and Musical Intelligence

Based on 25 years of research, Gordon (1979) has brought attention to sequences of rhythm and tonal patterns that should be presented to young children. He has determined that, until about the age of 9, musical aptitude is developmental and is dependent on environmental influences. The very young child reacts to immediate impressions with intuitive responses to aural perceptions. According to Gordon, ". . . music aptitude is stabilized potential for achievement in music, and . . . does not stabilize until approximately age nine" (p. 43).

Serafine (1983) has suggested that musical cognition entails two components: the structure of the musical object, and the processes by which the human subject clarifies the object. She believes that listeners engage in a process of hierarchical structuring as they organize the musical sounds they hear around a central structural element in the music. A determination of the elements that are essential to children's understandings of music and of the sequence by which they are processed would be beneficial in planning musical experiences and activities.

Zimmerman (1967) views musical intelligence as an organized structure of musical concepts based on perception. Musical learning begins with perception, whether it be discriminating between two phrases, singing a melodic chant, or listening with understanding to a complex fugue. As long as the child is limited to the use of spontaneous perceptions, the structural framework built to represent the sound world is also limited. Initial perceptions can be likened to the single snapping of the shutter to capture a brilliantly clear image of the immediate. With developing experiences, these perceptions become linked. From the immediate, perception moves to the mediate, that is, from the initial percept to the emerging concept. Through experiences with music, the conceptual framework develops from simple concepts to an interlocking network of operative musical concepts, which are based on relational transformations such as transposition, modulation, inversion, augmentation, and diminution. Musical intelligence is based not only upon the perception of the particular effects of these transformations, but also upon an understanding of the relational processes from which they derive.

Musical memory is inseparably related to musical intelligence. Memory can be viewed as that store of information encoded by assimilation and that, in turn, becomes the raw material for building and incorporating new knowledge. It is the anvil on which present and future musical learnings are fashioned. Everything a child does with music—whether listening, performing, or improvising—is within the context of remembered experience; that is, what is learned is determined by what is already known (remembered). Conversely, what a child will later remember is determined by present experiences and previous memories. What is remembered is also determined by the child's basic understanding of the task at hand and the context in which the task is presented (Zimmerman, 1982).

From these various theories that can lend continuity and validity to our teaching procedures, we next consider the aural and musical abilities of infants, toddlers, and preschool children.

Aural Awareness and Discrimination

As hearing is the last sense to leave the human being when departing this world, so it is the first sense to acquaint the entering infant with the perceptual wonders to be discovered. Aural awareness begins with the infant's active exploration of the perceptual environment. From an uncritical jumble of sensory impressions, images and sounds begin to emerge. Even the very young infant tries to organize the welter of incoming sensory experience into patterns. Recent research suggests that the mind is equipped with highly efficient neural arrangements that predispose the individual to make certain kinds of sense of experiences and to use the experiences in that distinctly human activity called thinking. Recent research also suggests that the requisite structures for pitch and tonal perception are available to infants much earlier than present practices indicate (Kessen, Levine, & Wendrich, 1979; Ostwald, 1973).

Babbling, a spontaneous and hereditary activity, begins when the neural centers have reached a certain stage of maturation. In children with normal hearing, babbling changes and increasingly includes the incipient sounds of the spoken language. Babbling also contains a singsong element that later becomes the basis for chant. Even deaf babies babble, but it dwindles away from lack of feedback.

Ostwald (1973) has provided a rather detailed map of musical behavior, beginning with prenatal, fetal development and intrauterine experiences with sounds, vibrations, and rhythms. Ostwald suggests that these experiences are the possible determinants of heightened auditory sensitivity and musical ability.

During the first month of life, the infant differentiates the human voice from other environmental sounds and orients aurally to the human voice, usually the mother's, as the preferred sound. The second through the sixth months can be described as a period of vocal contagion the period is also a time of learning to listen. The baby's vocalizing is stimulated by the convergence between his or her voice and that of another person. It is now that the infant enters into the lalling and trilling conversations with adults that have been documented in the literature.

By the second half of the first year, the infant shows increasing ability to repeat self-generated vocalizations and to mimic those of others. This imitation includes rhythm and accent as well as pitch. Pitch glides encompass the intervals of a third to a fifth. A vocalizing sequence that moves from pitch glides to undulating pitches to discrete pitches can be determined by 18 months.

Imitation is tied to developmental level. Short segments can be imitated by 12- to 15-month-olds, and complete sequences can be imitated by 19-month-olds (Fenson & Ramseym, 1981).

The infant is able to apprehend and differentiate simple musical gestalts, such as melodic contour and rhythmic groupings. Infants as young as 5 months can process this type of information. By monitoring changes in heart rate, Chang and Trehub (1977a, 1977b) showed that infants can discriminate between the transposition of a familiar melody and a new melody and between two different rhythm patterns. Each study used habituation to an initial stimulus, as measured by the heart rate, followed by a second stimulus. Similar discriminative abilities have also been determined by Melson and McCall (1970). Another study has shown that infants can distinguish different frequencies and make relatively fine discriminations (Olsho, Schoon, Sakair, Turpin, & Sperduto, 1982).

Kessen, Levine, and Wendrich (1979) reported on the ability of newborn to 6-month-old infants to imitate pitches. The pitches, d, f, and a were presented either vocally or on a pitch pipe during three spaced sessions. In the third session, the 23 babies responded by vocalizing on the presented pitch with significant frequency. A sequence can be determined from this study, which moves from vocalizing pitches to consciously varying and correctly imitating pitches. Also evident was the obvious enjoyment the infants derived from the activity and the effort expended to accomplish the task. This is an excellent early example of affect as a source of motivation.

The spontaneous singing of 2-year-olds includes major seconds and unisons, as well as minor thirds. Without exception, the research indicates that children begin with small intervals and work their way to the larger ones. It has been determined that the vocal range for spontaneous singing covers c' to b'.

For the 2- to 4-year-old, music and movement seem to be synonymous. In learning a new song, children pick up the rhythm before the pitch (Davidson, McKernon, & Gardner, 1981; Bentley, 1966). Preschool children are able to chant and imitate speech rhythms, keep a steady beat with rhythm sticks, and clap a steady beat (Rainbow & Owen, 1979).

In singing games and creative movement, children communicate with their bodies. They give shape to musical sounds by projecting them in space, and, at the same time, acquire a spatial sense of themselves in relation to other children and objects. Children also demonstrate their perception of melodic contour and rhythmic patterns through body movement.

Early cognitive activity moves from discriminating to categorizing and organizing perceptions. Preoperational children classify perceptions according to one dimension at a time. Likewise, their reasoning moves from perception to perception. As children interact with sounds through movement and improvisation (experimentation), they should be guided in making decisions concerning timbre, intensity, pitch, and duration. It is here that labeling becomes important, since the label helps children to encode information and clarify thought about sound and/or music. Through a multisensory approach, very young children can learn the following concepts of contrasting facets of musical elements: loud-soft, fast-slow, even-uneven, high-low, up-down, and so forth. Children should be able to perform this type of operation as they negotiate or engage in musical tasks. After children are able to do this easily, they can categorize sounds according to more than one dimension (e.g., soft-fast sounds and high-fast sounds). The ability to handle an increasing number of concepts is a fundamental fact of development. A developmental sequence pervades research findings in music concept formation, with concepts developing in the following order: volume, timbre, tempo, duration, pitch, and harmony.

Memory

The development of memory skills involves a composite of many factors and occurs over a wide age span. It involves active participation of children, in which selective attention, verbal skills, and mnemonic strategies play key roles in the process. Older children, as compared with younger, use task-appropriate strategies as an aid to memory. Let us consider some important components of the early memory process.

Preperceptual-auditory or echoic storage contributes to auditory perception in infancy as in adulthood, but the useful lifetime of an echoic trace may be longer in infancy (Cowan, Suomi, & Morse, 1982). This seems to indicate an absence of developmental trends in echoic memory and so suggests that initial perceptual memory is based on automatic processes that are a critical component of memory processing, especially in very young children. Research has also shown that very young children possess a precategorical, acoustical storage system that aids in the initial understanding of oral language (Gilmore, 1981).

Selective attention, the conscious allocation of one's attention to a specific stimulus, is essential in aural-discrimination learnings and is the key to (STM) processing. Here, a learning sequence can also be determined: perceive ——→ discriminate ——→ select ——→ attend to ——→ store ——→ remember. Closely tied in with selective attention is the concept of dimensional salience. As it pertains to the learning of music, is there a preference for the selective attention given to one musical element over another or to one quality of sound rather than another? For example, children tend to learn the rhythm of a song first, which seems to suggest that rhythm patterns have salience over melodic patterns (Bentley, 1966; Davidson, et al., 1981).

Sergeant and Roche (1973) found that, if a song is repeatedly presented to 3-year-olds in the same key and within their singing range, the children will tend to reproduce the song in the key in which it was initially learned. Here, pitch seems to be salient. This ability diminishes with 5- and 6-year-olds, as they begin to store melodic patterns in terms of contour and interval. A possible explanation is that the necessity of remembering more and more information leads to the storage of abstractions of perceptual data rather than reliance upon eidetic memory, which is extremely inefficient

(Zimmerman, 1982). Perhaps most important for the music educator is the simple fact that musical memory develops in the context of musical activity.

With this background of the aural and musical awakening of very young children, let us move to a consideration of several studies that provide a wealth of information concerning musical development and suggest particularly fruitful directions of inquiry.

Representative Studies

Heinz Werner

An early study by Werner (1917/1961) examined the spontaneous melodies of young children. He determined stages in: (a) the direction of melodic movement; (b) the overall form of the melody; and (c) the ending. Where the 2- to 3-year-olds sang descending melodies, the 3- to 4-year olds used both ascending and descending lines. The 2- to 3-year-olds tended to repeat the entire motif, but 3- to 4-year-olds were more selective, repeating either the initial phrase or the final phrase. The lowest tone of a descending phrase was the ending for the youngest children; those singing ascending and descending melodies began and ended on the same tone. The melodic range moved from a descending minor third (which included only those two tones) to a fifth (which included more than three tones).

The Pillsbury Foundation Studies, 1937-1948

Four studies covering the music research at the Pillsbury Foundation School in Santa Barbara have been reissued in one volume, Music of Young Children (Moorhead & Pond, 1937-1948/1978). The primary purpose of the school, which included a limited number of children ages 2 through 6, "was to develop musical understanding in young children, and, by encouraging free musical expression, to discover the principles that govern children's relationship to music" (p. 3). Four insights emerging from the studies are basic tenets of early childhood music today: (a) for young children, music is primarily the discovery of sound; (b) music time with children should include their purposive action or involvement; (c) in planning music time, it is necessary to consider social, environmental, and procedural conditions; and (d) spontaneous music making should be carefully observed. "Chant" (Book I) notes that children's chant seems to recapitulate practices found in the singing of primitive people. This has been substantiated by the ethnomusicologist Bruno Nettl (1956). A detailed analysis of the oral form and of the rhythmic, melodic phrase structure of chant provides a base for further study of musical development by this means. "Free Use of Instruments" (Book IV) includes case studies of three children. These can be used as examples for compiling one's own case studies.

In an attempt to carry on the Pillsbury tradition, Shelley (1981) launched a study at the University of Maryland's Center for Young Children to gather information concerning children's natural musical expressions. More questions were encountered than were answered. Results did indicate, however, that an environment conducive to children's free exploration of sound and unhampered sound construction, can be established in a contemporary preschool setting, when instruments are readily available. Results also indicated that characteristics of children's musicality, as observed in the Pillsbury Foundation School, were evident (e.g., embryonic polyphony, interval size, free rhythmic structure, and chant) as the primary expression of musicality.

Conservation Studies

In the 1960s, a series of music conservation studies (Pflederer, 1964; Zimmerman & Sechrest, 1968) focused attention on children's underlying thought processes as they engaged in music tasks and activities. These studies were among the first to view musical development within the context of a cognitive developmental framework, in this case Piagetian. The research evolved from the following ideas: (a) an examination of the decentration process and of conservation in musical development could indicate a more efficient way of presenting musical concepts to children; (b) the research could determine when in the developmental process a certain type of musical experience would produce the maximum amount of growth; and (c) the research could produce an instrument for determining sensitivity to tonal and rhythmic patterns. Findings from these studies indicated that the ability to conserve the sameness of a phrase in spite of variation corresponded to Piagetian stages; other findings indicated an ordering of difficulty of the variations, with change of instrument and change of tempo being the easiest.

Jeanne Bamberger

Bamberger (1982) followed a somewhat similar line of inquiry in an attempt to determine how the young child actually perceives music. Children, ranging in age from 4 to 10, were asked to draw a picture of the rhythm of a familiar nursery rhyme in a way that they could remember it or another child could clap it. The youngest children, ages 4 and 5, tried to duplicate the motion of their clapping, thus producing swirling scribbles. The 6- and 7-year-olds drew a figural representation of each discrete clap. The older children tended to group the claps metrically. Obviously, the role of learning, whether formal or incidental, cannot be casually dismissed. Of interest to us is the finding that the 4- and 5-year-olds tried to picture the activity of clapping; that is, at this stage the medium is the message.

Analysis and Conclusions

The research to which we have referred includes two ways of gathering information pertaining to musical development and response--observation and intervention. Observation can be of children's spontaneous musical activity or of activity into which an outsider has intervened with a suggestion, a direction, or a musical task to solve. In a true experimental setting, the child is often asked to learn and remember in ways that he or she has probably never done before or will ever do again. For example, a discrimination task in terms of a "same-different" response causes difficulties for the preoperational child. Once the initial stimulus has been presented, any pattern that follows is different, because it is no longer a part of the first one; it is, quite simply, different. A more useful task might be of the sorting variety that asks the child to find patterns that "go together."

Many music test items have been too verbally oriented. Listening tasks should be combined with the child's own music making. "Hands-on" music approaches that use song bells, Orff instruments, electronic music instruments, and computers are all possibilities for the kind of direct involvement that can furnish us with the clues to the child's thought processes as he or she interacts with music.

I urge you to be flexible and to combine observational and clinical methods with experimentation in relation to the problem studied. We need the narrative description of the case study to complement the objective, numerical data and other scaled measures of behavior. With very young children, an intensive analysis of well-defined aspects of their musical behaviors in dynamic natural contexts, as opposed to artificially controlled surroundings, is essential if we want to determine their cognitive understandings of music.

With so many infants and toddlers in daycare centers and preschools, we are at the point where longitudinal studies can be conducted with little difficulty. Since longitudinal studies allow us to take a series of snapshots of the same child's development at various levels, they yield the most conclusive evidence concerning the development of various aspects of musicalilty.

This paper has attempted to bring together knowledge from developmental theory, from musical development, and from specific research into early musical responses and activities. The evidence reflects that early childhood music education is a dynamic and robust profession, grounded in theory and with a growing body of literature and research. Yet, all too frequently daycare centers are a cottage industry, even though they have to meet state licensing requirements. Unfortunately, these requirements rarely, if ever, mandate musical activity, much less call for a music professional. It is up to us to reach as many of these employees as possible through workshops, clinics, and seminars to ensure that theory will eventually be put into practice. The Parent-Toddler Music Program is an excellent example of this type of program.

There is cumulative research evidence that allows us to speak authoritatively and conclusively about: (a) early vocal range and its expansion; (b) interval reproduction; (c) characteristics of spontaneous singing; (d) stages in learning a song; and (e) certain aspects of rhythmic development, such as the effect of tempo on the accuracy of a child's motor responses. We need to encourage research in cognitive and skill development, in memory development, in our evaluative procedures, and in the influences of the social setting on musical learning.

Innate musical responsiveness and musical development are best nurtured within a rich and stimulating musical environment that provides for individual and group learning experiences. Development of aural skills, dance and movement, and vocal and instrumental improvisation are important facets of this environment. The active production and reproduction of sounds contribute greatly to aural discrimination in children.

I would like to suggest that there are two ways of approaching music with children of any age: (a) the psychoacoustical building blocks approach that considers elements and musical fragments; that is, parts before wholes; and (b) the psychomusical ready-built building approach that considers music as an aesthetic unity; that is, wholes before parts. This approach can be examplified by asking the child the question, "What do you hear?" before he listens to a short but complete musical example. Each of these approaches is compatible with a developmental orientation; each can be sequentially organized; but neither should be exclusively followed.

Lessons should be designed so that the information is neither completely strange nor completely familiar, but just at the cutting edge of the child's experience and ability to comprehend. Children should be prepared gradually for unusual or new musical experiences. A developmental music task is two-pronged; it has initiating activities (by either the child or the teacher) and promoting activities. We should be certain that the promoting activities lead to expanding awareness and understandings and to further learning. A sequence of musical experiences presented in an inviting and nonthreatening musical environment will nurture the musical development of our children and lend meaning and pleasure to our teaching.

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PART II

REPORTS BY RESEARCH TEAMS

EXPANDING THE MUSIC LISTENING PREFERENCES OF 3- AND 4-YEAR-OLDS: FOSTERING RECOGNITION OF AND RESPONSIVENESS TO SELECTED WORKS OF MUSIC

D. Jeanne Callihan and Diane Cummings

Teachers of young children report that youngsters 3 and 4 years of age already exhibit distinct listening preferences in music. Their likes and dislikes have developed quite logically from those musical selections to which they have been exposed, most of which have been dictated by the preferences of parents and/or caregivers. With television, radio, and current movies providing the major portion of a musical diet, today's child has little opportunity to develop a taste for music from the classical repertoire.

Purposes and Scope of Project

This field-based research project for prekindergarten children focused on expanding the musical listening preferences of 3- and 4-year-olds. It was designed to provide positive, age- and stage-appropriate musical experiences based on a limited number of musical selections to the end that participants would recognize the selection and respond in a positive manner, verbally and/or nonverbally. Teaching materials such as floor-scapes, table-scapes, and props were developed to facilitate individual involvement with music. These materials were created in such a manner that busy caregivers could use them as models to create their own materials.

Research Setting

The Department of Education at Trinity University in San Antonio sponsors an "Afternoon Kindergarten Program" which meets for 2-1/2 hours twice each week. Enrollment is limited to 15 children per day to facilitate individualization. The program is housed in a university classroom adjacent to an observation/sound-monitor room with video-camera equipment and monitors readily available. The facility serves as a lab site for university juniors and seniors enrolled in education courses; the facility is also used as a research site for limited faculty inquiry.

Procedures

The study was conducted during the 1983-84 school year. During the fall semester the researchers planned the study, reviewed background literature, selected the music, and became "accepted factors" in the children's preschool environment. During the spring semester, children were invited to participate in music activities each week for a period of 30 minutes, with sessions alternately audio- or videotaped for later analysis. During the first third of the spring semester, the total group was encouraged to participate in the activities. For the remaining two-thirds of the semester the three youngest children were selected for concentrated study. This group consisted of a boy (age 3), a girl (age 3-1/2), and a girl (age 4).

Format

During the total group sessions, the activities were presented to all 15 children at one time. Later in the day, a follow-up experience in a small group was one of the learning options available. For the smaller group of the three youngest children, the session was the "selected option" during activity choice time. For each session, the music presentations, along with the appropriate playscapes and props, were made by the music researcher. Recordings and tapings were made by the education researcher. Analysis of the data was a collaborative effort.

Music Selections

Research in child development indicates that young children learn best when playing, when they are personally and actively engaged in a musical experience or an activity, and when a multisensory approach to learning is used (Andress, 1980; Brand & Fernie, 1983; Zimmerman, 1971). Research in music education suggests that young children have the strongest responses to musical selections that are highly rhythmic and/or highly melodic (McDonald, 1979). It was hypothesized that short, distinctive excerpts that could be remembered easily would have high appeal. Selections about objects that were familiar to children or could be explained briefly and those for which playscapes and props could be easily constructed were chosen.

In Rossini's William Tell Overture and Prokofief's "March" from The Love for Three Oranges, the children moved small plastic plumbing connector dolls from scene to scene on the playscape while hearing the musical excerpts and telling the stories. The children moved these same dolls to excerpts from "Promenade" from Mussorgsky's Pictures at an Exhibition and sang about the child-created works of art.

Children danced with puppets and paper-plate flowers to Tchaikovsky's "Waltz of the Flowers" from The Nutcracker Suite and Stravinsky's Petrouchka. Small cars were driven from picture to picture representing the songs played in a medley by Goldman entitled Children's March. Children moved a large butterfly from flower to flower on the playscape that helped to show and feel the phrases in Chopin's Prelude in A.

Conclusions and Implications

Some of the conclusions drawn from the data analysis are:

1. The children demonstrated recognition of and enjoyment of the music from the classical repertoire and the accompanying activities.

2. Their responses were age- and stage-appropriate and became positive with experience.

3. Children were able to participate in the activities with or without the researcher, alone, or with a small group.

4. Children modeled their responses after those exhibited by the researcher.

5. Active involvement of each child fostered greater enjoyment and learning.

While the number of subjects was small, the implications were clear that teacher modeling of enthusiasm and involvement was a key factor in children's responsiveness. A planned program, a prepared environment, and appropriate hands-on props enhance learning and enjoyment. Children need to be offered a wide range of music in their formative early years.

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RECENT RESEARCH ON YOUNG CHILDREN: IMPLICATIONS FOR TEACHING AND DEVELOPMENT

Lilian G. Katz

IMPLICATIONS FOR MUSIC EDUCATION

Mary E. Hoffman

Lilian G. Katz presented a summary of current research on teaching young children. Mary E. Hoffman provided supplementary material specifically focusing on concerns of music education.

Katz

Contemporary research on the development and education of young children supports the long-accepted assumption that early childhood is a period of rapid development of almost every aspect of the whole child. Six points outlined below are based on developmental principles that seem to have application to teaching young children.

(1) The Principle of Optimum Effects

This principle states that almost any influence on children's development is equally damaging in extreme proportions, intensities, or frequencies. Another way of saying it is that just because something is good for children, more of it is not necessarily better. Many examples show this curvilinear relationship between the amount of the influence and positive effects. Examples indicate that very low and very high amounts of affection may be equally damaging (neglect versus "smother-love"). Extreme amounts of stimulation, protection, anxiety, and practice are also deleterious. Note that what may be optimum for one child may not benefit another. Whether the child is experiencing a given influence in optimum proportions can only be ascertained by observing his or her behavior.

Hoffman

Given the assumption that early childhood is the period of most rapid development, one must look carefully at current practices in music education for the very young. In the light of the six points of research outlined by Lilian Katz, some of the strategies in current vogue could be deemed beneficial and growth/development supportive. On the other hand, the nature of the discipline of music encourages music educators to promulgate notions of skill-drill, repetition, and music performance before the young child is ready to absorb these tasks into his or her program of learning.

The notion that "more is better" can be rigorously applied to older children in preparation for a musical performance, as in practicing a choral or instrumental ensemble piece. In considering the young child and music, however, repetition can have the opposite effect, especially if it occurs within one time episode. Body language is the first clue (e.g., trunk sagging, downward head motions, restlessness in the form of touching self-things-others). Verbalized interruption often follows, complete with negative aversive behaviors. However, single repetitions over many time episodes seem to have the opposite effect, such as smiling upon greeting an old friend, or responding overtly with singing, bodily rhythms, or movement. Even here, however, the teacher must note at what point single repetitions have peaked and the downward spiral has begun. Changing the event without changing the task (e.g., as in many different songs with the same tonal pattern), can facilitate repetition of the task without repetition of the single event. Variety is supplied by changed rhythm and changed verbal content.

Katz

(2) The Principle of Learning Through Interactive Processes

Contemporary insights indicate that learning is most effective when it includes interactive processes. Young children should be interacting with their environments, materials and equipment, with each other, and with adults, and should be interacting about their environments--those around as well as within them. An important feature of interaction is the contingencies of the interactors' responses to each other. Contingency means that the responses of one participant in the interaction are related in a differentiated way to the responses of other participants. Conversation is an example of the kind of interactions--strings of contingent responses--that stimulate not only language development but may also strengthen the internal organization of behavior more generally.

Hoffman

Songs present competing stimuli to the young learner that often mitigate against interaction with the event. For example, the young child reacts to the stimulus of the words of a song, but the music, its pitch and rhythm sounds, competes with the words for the attention of the learner. Body actions added to a song compete with both words and music. Some young children are able to process words and music together into a song at an early age while others at the same age "speak/sing" with more attention to words than rhythm or pitch. Some children respond only to the movements added to a song. Given these sets of interaction-with-task problems, the contingent mentor responses should be casual, frequent, and induced. Casual introduction of an activity such as a song or sound exploration can be followed by repetitions of the task(s) over time. The teacher at first induces the task; over time, the task can then be reconstructed by the child as, for example, in the casual humming or sing-chanting of the song or the exploring, testing, touching, and choosing of sound producers. Although the term casual is used, this does not mean nonstructured in terms of sequenced learning events. The casual introduction of song does not mean the casual choosing of the song to be introduced into the interactive process.

Katz

(3) Children's Sense-making Impulse

Teachers are in an ideal position to capitalize on young children's apparently natural disposition to make sense of their environments, experiences, and observations by imposing whatever understandings or constructs they have upon what they encounter. This impulse is well illustrated in the Hughes and Grieve (1983) experiments in which they asked children bizarre questions that the children tried to treat sensibly. Teachers' jobs include helping children to improve their understandings of relevant and important phenomena (i.e., to make better sense of what they encounter).

Hoffman

Sense-making impulses can be responses to events in music without benefit of prior labeling. Unless taught differently by cultural conditioning, a child will move naturally in a rapid manner to fast music. This makes sense to a child. Children will cover their ears when sounds are too loud. This seems the sensible thing to do. Children will not, however, label these events as fast or loud unless taught the labels at the time of experiencing the event. Labeling itself presents a problem. When is it appropriate to introduce the label? Is it more appropriate to label at the introduction of an event or after many experiences? When is labeling done too soon? Fast, slow, loud, quiet are events to which a young child can respond without labels. High, low, long, short, soft are paradoxical labels, that is, labels that mean something other than pitch or duration. For example, high can mean loud, up in the air, tall. Long can mean "muchness" rather than duration. Young children should have many experiences with these latter events as applied to music without the labels but with physical responses before any attempts are made to name and categorize the event(s).

Katz

(4) Skills and Dispositions

Our goals include three types of learnings: skills, knowledge, and dispositions. Skills are easily observable, relatively small units of action that can be learned through instruction or in lessons, and they can be practiced and drilled (although only optimally so). Knowledge includes facts, ideas, concepts, constructs, and so forth. Dispositions are relatively enduring habits of mind, characteristic ways of responding to experience across situations (e.g., curiosity, humor, creativity, friendly, unfriendly, etc.). Dispositions cannot be learned in workbooks or lessons; they are probably learned primarily from being around people who have them and from having them appreciated, acknowledged, and welcomed. Many have the necessary skills to read but lack the disposition to be readers. The problem with music (like many other fields) may be that skills are taught in such a way that the learner loses the disposition to use them.

It is indicated by long-term follow-up studies of children enrolled in different kids of preschool and kindergarten programs (Miller & Bizzell, 1983) that when the curriculum takes a "remedial" approach and allocates large proportions of time to practicing skills, the test results look impressive, but only in the short term. Curricula that, on the other hand provide for the strengthening of the dispositions associated with learning, inquiry, and so forth, show relatively unimpressive results in the short term but strong benefits in the long term. In other words, skills may be acquired at the expense of the disposition to ever use them. The data imply that if we begin too early and too hard to drill on skills, we may do so at the expense of the desirable dispositions. These data suggest that it is best to approach the curriculum in such a way as to optimize the acquisition of both skills and dispositions to use those skills by responding to the cues given in children's behavior.

Hoffman

Musical skills and knowledge are highly interactive. Music reading at sight is a skill that uses knowledge of sameness and difference, up- and downwardness, and so forth. The skill of playing an instrument needs ear/hand coordination as a skill, but in note reading the eye needs to conduct the notational message to the brain in order to activate the ear/hand responses. Singing is a skill that depends much on the skill of aural perception and vocal production at the imitative rote learning task; however, the aggregate response by the learner is complex indeed. For young children, skill-drill divorced from "real" music is counterproductive since the child is not long-range-goal oriented. Nor is the child ready for complex concept building. Knowledge in the realm of music tends to be factually based and predetermined, (i.e., names of notes, lines and spaces, and so forth). What can a young child learn to do, think about, or feel during music experiences? Some quick and often forgotten examples are: that a song begins and ends; that one can interact with others in the class in a rhythm game set to music (perceiving the beat of a song); that a drum sounds louder than a triangle (though both are tapped); that the second verse of a song uses the same tune as the first one; that it was enjoyable to pretend to be a duck in a song-story; that exploration, laughter, making something to play music with, and experiencing the unexpected at the end of a ghost song are tools to be used later in learning about music because the earlier experience predisposed the child to want to be around music and musicians.

Katz

(5) The Development of Interest

Interest can be defined as the capacity to "lose oneself in something outside of oneself," to get absorbed and involved in something external deeply enough to pursue it through its routine elements. This is sometimes called intrinsic or continuing motivation. Recent research has illuminated the effects of different kinds of feedback on interest and the "overjustification effect" on the development of interest in children (Deci & Ryan, 1982; Morgan, 1983). Research suggests that when the positive feedback given to children is general, it may serve to increase productivity but not interest. If the positive feedback is specific rather than general, and includes information about the competence of the performance, it serves to strengthen interest. The latter is called a tribute, the former an inducement. The concept of overjustification refers to the finding that to give children rewards for those activities they had started out to enjoy undermines their interest in them. This line of research suggests caution in the dispensation of rewards and praise since their long-term consequences may undermine our most important goals.

Hoffman

Music as a discipline is often predicated on approval/disapproval in its most overt manner. Applause greets the success of a musical performance, whether by a group or soloist. All music educators started their careers in some form of audience/response mode. Because of this background, many music educators practice a form of faint, unknowing deception upon young children. For example, rewards are often offered before the event: "You'll love this piece," or that "I know you are going to do well in this task." This corresponds to the applause that greets a performer as he or she walks on the stage. With younger children who have no way of knowing whether they will or will not like, do well, or feel satisfied, the prior approval of a task not yet attempted sets up a dichotomous situation. The mentor has said it will be fun, satisfying, and so forth. The event occurs. The group is praised even though few know why. We know praise solves the mentor problem of self-justification, that is, "They did well because I told them they would, not because they really did." The child doesn't have such reasoning powers and doesn't know what is considered as a bench mark for doing well. It is called inducement. On the other hand, post facto tribute in the form of specific mentor reactions to the competence of the group depends upon the identification of those task segments which could be improved, how they could be improved, and why it is necessary to improve them. The interest begins to be generated through a curiosity set (i.e., "What will happen if we do what the teacher says? Will we know it is better?"). Again there may be a problem with young children in that there is no frame of reference for doing better in an unknown and untried task. It is imperative, then, for mentor intervention to take place at the most specific level to help the young child perceive self-competence.

Katz

(6) The Recursive Cycle in Development

The recursive cycle is a construct that asserts that whatever behavior a child has, he or she is likely to get more of it unless there is intervention. This line of inquiry indicates that many of the attributes of a child, once in place, tend to be increased because of the responses they tend to elicit from adults and other children. Examples are offered to indicate that children are often caught in undesirable cycles (e.g., the more unattractive child, the more avoided he or she is by adults and other children, hence the more unattractive the child becomes and the more avoided he or she will be), and that the child can never break the cycle he or she is in--only an adult can. Helping children to acquire social competence in the early years is a serious matter in that we now have reason to believe that those young children who fail to do so have significantly greater problems with mental health, marital adjustment, and juvenile authorities as they grow up (Asher, Renshaw, & Hymel, 1982; Rubin & Ross, 1982).

Hoffman

The recursive cycle in music tasks is often reinforced by familiar intervention: "His Daddy can't carry a tune in a bucket, either." Out-of-tune singing can become a positive self-image. Daddy is a hero figure. If Daddy can't do it, not doing it must be good. Fortunately, carrying a tune is not the only task to be learned in music education. Other skills can begin to be developed in the very young, such as physical responses to dynamics and tempo in music, exploration of sound qualities in unpitched instruments, and hosts of other experiences. The vocal tasks must be continued with sufficient opportunities for success, especially in songs with limited pitch range and at the level of the child's own singing range. Songs with sufficient intrinsic charm and excitement can help the child "lose himself in something outside of himself" (see point #5) long enough to enable him or her to gain interest and to block negative adult interventions.

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NURTURING AND ASSESSING AESTHETIC RESPONSE IN PRESCHOOL CHILDREN

Margaret Woods and Carol Rogel Scott

> Since music is both an art and a science it must be emotionally appreciated and intellectually understood.
>
> Otto Karolyi

The last decade has seen a surge of interest in aesthetic growth. Research tying that growth to a cognitive-developmental model such as that by Gardner and his associates at Harvard Project Zero (Gardner, 1973; Gardner, Winner, & Kircher, 1975; Ives, Silverman, Kelley, & Gardner, 1981), as well as research by Parsons and others (Parsons, 1976; Parsons, Johnston, & Durham, 1978), indicates a series of stages that clearly begin by 5 or 6 years of age, but may begin earlier. Aesthetic theorists such as King (1981), Eisner (1972), and Broudy (1982) posit various models that suggest potential for early stages of aesthetic responding in young children and lend support for the role of education in training aesthetic sensitivity. Regrettably, little of this research has been done in music.

Though definitions of what constitutes the aesthetic response vary, it is generally concluded that it encompasses both cognitive and affective dimensions, or as Broudy (1982) says, both "pleasure and interpretation." The challenge is to find effective means of measuring aesthetic responding, particularly among preschool children where verbal skills are often limited.

Pictorially recorded actions/reactions of the young pose a potent source for observing intial stages of aesthetic experiencing, use of intuitive effort, and expression of innermost feelings. Verbal records often note adventuring with metaphor, statements of likes and dislikes, and articulations of reasons for valuing (Gardner, 1973; Parsons, et al., 1978).

A pilot study was conducted with 16 preschoolers, ages 3 and 4, who were identified as gifted (IQ of 135 or above). These children were known to have advanced verbal and thinking skills and, therefore, might demonstrate choice-making, both verbally and nonverbally, and might also be equipped to give verbal rationales for their choices or aesthetic decisions.

Two different situations were designed that were thought to have potential for nurturing and/or generating some kind of aesthetic response. One was a box with eight different doors and locks that, when opened, revealed music featuring traditional children's songs played by hidden music boxes. The second situation included a series of creative activities, one in drama and three in music, designed to promote creative involvement, to focus on elements, and to give attention to objective viewing of their product using a guided discussion technique (Pellegrini, 1981). In music, the children participated in sound exploration and discussed the result as they listened to a tape recording of their composition (Biasini, Thomas, & Pogonowski, 1972).

From seven catalysts for learning developed in the Children's World at the New York World's Fair, Curiosity and Commitment were selected and recorded on videotape as 3- and 4-year-olds (a) chose one of eight doors to open, (b) discovered how to open them, and (c) expressed emotional reactions to the music box sound within. Curiosity was aroused from the outset. That same curiosity resulted in a high level of commitment. Masters of intuitive powers, the children persisted from 2 to 12 minutes in working with the hasp to open the door. The children opened all of the doors and reopened them, showing great joy in success as well as in hearing the music. Half of the children were willing to select a "favorite door" and six of the eight gave reasons for their choice. All were typical of the type of responses found in children of these ages with color, shape, or music being stated as the reason they liked a door.

The creative process in music with 4-year-olds yielded concentration, total involvement, divergent thinking, and discrimination and grouping responses. Although questions to elicit evaluative responses were asked, no evaluative responses were given.

It is felt that the box has potential for use with young children in both nurturing and examining aesthetic responding. As an object for exploration and interaction in a preschool setting, the box as currently designed stimulates curiosity and commitment, as well as giving pleasure. It also provides a challenge for cognitive mediation and judgment. If the box were redesigned to control for shape and color and contained music presented in children's singing range, it could be used by researchers to present an array of musical choices for judgment, much in the way aesthetic research is frequently conducted in the visual arts.

Although time in the pilot study was too limited for full development of its potential, the project indicated that the creative process seems a viable one for developing aesthetic sensitivity, as well as building vocabulary and assessment skills. The process also seems to be a powerful vehicle for discovering what is an intuitively derived "best fit" aesthetically for children of all ages. Video recording of nonverbal responses also seems to be useful, as a high correlation was found between observers as to what constituted reactions of curiosity, commitment, and joy in discovery.

Research in aesthetic growth in general, and aesthetic growth and response specifically in music is critically needed. This research should be longitudinal in scope, preferably in natural settings, and should move beyond mere statement of preference to include evaluation. As educators, we need to know how we can help make the aesthetic attitude self-perpetuating. We need to know what daily activities might ensure that the desire for aesthetic satisfaction becomes as important as the desire to meet other kinds of needs.

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PART III
WORKSHOP SYNOPSES

MUSICAL MOVEMENT:
FROM SLITHERING TO GALLOPING THROUGH MUSIC

Margaret C. Dugard

The stages of a child's movement from slithering to galloping was the focus of this workshop. Since movement is an integral part of children, they need to be comfortable with the body's movable parts in order to master axial and locomotor activities. A child's sense of movement begins in infancy during the prewalking stage. Young children can reinforce this phase of movement development with the following activities:

1. Slithering--moving without aid of arms or feet; movement of infant prior to realization that limbs can propel the body.

2. Scooting--raising and lowering torso--no hands or feet.

3. Low crawl--use of arms and legs--body close to floor.

4. Crawling--up on hands and knees.

5. Lifting--pulling up to knee position and swinging from side to side.

6. Walking--on tiptoe and at varying speeds.

7. Jumping with two feet.

8. Galloping.

Although movement is the focus, singing, speech, tempo, rhythmic awareness, and form are stressed. Brevity of pieces is important to allow for constant repetition needed to retain information and to account for the child's short attention span. The element of play in each composition invites children to enter imaginary situations, expanding their repertoire of skills.

As children review these sequential movement activities, they perfect the skills of coordination and balance to become more aware of how their bodies move through space.

MULTICULTURAL MUSIC MATERIALS FOR EARLY CHILDHOOD MUSIC PROGRAMS

Ellen McCullough

This session examined the music of the Native American, Hispanic, Black, Asian-American, and Appalachian cultures in relation to their inclusion in early childhood music programs. Participants encountered folk stories, mini-dramas, dances, songs, and instruments of these selected world cultures, in which the application of child development principles to the teaching of music was emphasized. By experiencing music of global ethnic groups, a child (1) develops awareness and appreciation for racial and cultural diversity; (2) values the contributions of all ethnic groups; (3) respects his own and others' cultural background; (4) affirms the uniqueness of each individual; (5) learns how to live successfully in a multicultural society; and (6) values and celebrates cultural diversity.

Researchers agree that positive and negative feelings about race begin by the age of 3 or 4. Educators must take the responsibility to promote meaningful multicultural early childhood programs.

JAPANESE CHILDREN'S PLAY SONGS

Reiko Hata

Examples of Japanese children's play songs helped workshop participants understand the nature of Japanese early childhood education. Young children have more contact with Western music than traditional Japanese music, even before entering school. Because of the influence of mass communications, Japanese children have absorbed sophisticated songs and rhythms at an early age.

Traditional play songs still have an important role in the daily life of Japanese children. The songs are always accompanied by finger, hand, and face play or play in pairs or groups.

In the drawing songs illustrated on videotape, children drew a picture while singing. The words of the song were the instructions about what to draw, such as a line or a circle. In the group-play songs, children executed rhythmical movements while singing, similar to the way American children act out the movements to "London Bridge" while singing.

All of these songs comprise a narrow range and include the interval of a minor third, which is most frequently sung by children everywhere. The spontaneous calls of Japanese children often form major seconds as well. Since the play songs are in the pentatonic scale, new songs can be learned quickly, thereby increasing the wealth of play songs that are vital to the Japanese musical world.

MUSIC IN FAMILY AND FAMILY-LIKE SETTINGS

Randal A. McChesney

The importance of singing in our culture was stressed in this workshop. Song is a powerful force in helping a child develop language, perceptual skills, psychomotor coordination, and sensory and self-awareness. Some adults fear that their voices are not beautiful and are unwilling to share songs with children. Realizing the power of song, they may overcome these fears in order to promote the growth of children.

Singing games are a natural resource of our cultural heritage. Each piece is a microcosm of life, whose gestures and words provide the medium for sharing ideas. In the interaction of play, each person's essence finds expression.

While singing, the child learns the syntax of language in an unthreatening environment. At the same time, his peers and teachers provide vocal models. But most important of all, people remember throughout their adult lives song games as a delightful pasttime of childhood.

In our increasingly technological age, it is important to nurture the spirit of song and play in order to support the growth of society's most precious resource—the child.

I HAVEN'T HAD MY TURN YET

Phyllis E. Dorman

This session focused on helping children achieve social learning through poetry, role playing, listening to music, musical games, and sound exploration. Singing games provide opportunities for children to take turns, make friends, and practice giving. As infants grow, they learn to alter the "I want it" attitude to the "I haven't had my turn yet" response. Large group play experiences in music can promote this transition from self to social integration.

Picture-story books can be turned into sung improvised stories. These stories can be related to music listening experiences and performed as dramas with movement and costumes. In a sung improvisation, the teacher initiates the activity by singing a question about the picture using "sol-mi" or other simple melody patterns. The students respond in like manner.

To extend a picture-story book with a music listening experience, the students might lie on the floor and listen, while the teacher draws patterns of light on the ceiling with a flashlight. Cutouts might be put over the lens to coordinate the story with the music.

When selecting songs and stories for large group play experiences in music, adapt the words to fit your own needs, or better yet, ask children to invent their own verses. A healthy environment is one where children give input and take responsibility. In this way, children can replace the sterility of packaged products with the exploration and experimentation of new ideas.

SINGING: A YOUNG CHILD'S WAY

Kathleen Gjerdingen

Expressing oneself through singing is one of the enduring pleasures in life and helping children experience this pleasure is a special privilege. Helping children sing means more, however, than teaching them to match pitch and learn heritage song materials. Children should be encouraged to sing in a spontaneous, as well as a structured manner. Spontaneous singing occurs when the child sings in a "stream of consciousness," free improvisatory style such as needed for vocal inflection games, copycat games, singing conversations using puppets, singsong stories and improvisatory singing based on stories, picture books, or cartoons. In spontaneous singing, the child dictates, creates, and sculpts the song at a moment's notice to suit his or her own vocal ability and expressive desires. In structured singing the song dictates to the child. The child disciplines himself to reproduce a song with already given pitches, rhythm, harmony, and form. This ability is developed through activities such as finger plays, Mother Goose rhymes, chants, echo games, question-answer games, matching pitch activities and any activity that helps establish pitch, rhythm, and feeling for tonality.

Spontaneous singing is the foremost vehicle for vocal development for the young child and should precede and accompany structured singing. While singing spontaneously the child expresses himself esthetically and can control and change the activity to suit her desires. The unpredictability of spontaneous singing should not deter the teacher who feels more comfortable with a more structured music program. Children need to participate in a balanced singing program incorporating both spontaneous and structured singing.

NURTURING CREATIVE BEHAVIOR IN EARLY CHILDHOOD

Lenore Pogonowski

Interaction, the Early Childhood Music Curriculum that was developed in the Manhattanville Music Curriculum Project (MMCP), was conceived as an open experience in creative musical exploration and experimentation. The principal goal of the program is the experience itself. Encounters are provided that allow for judgment making and opportunities to discover sound and musical ideas.

The workshop demonstrated the nature of the process-oriented early childhood music curriculum. The approach capitalizes on the natural "play" tendencies of young children. Through use of an imaginary creature (Harvey, the pouka), the session demonstrates how young children could become equally involved with musical ideas and imagination.

Phase I of Interaction--Free Exploration--was demonstrated in the belief that 4- and 5-year-olds are able to become participants in a creative process that develops sensitivity to sounds for their expressive qualities and their potential for communication. The approach is intended to spark the imagination and builds upon the child's natural curiosities in a manner consistent with his or her indigenous ways of exploring the environment.

MUSIC: AN INDISPENSABLE PART OF THE YOUNG CHILD'S LIFE

Lois Birkenshaw

This session emphasized the importance of cultivating musical awareness in children as part of their complete conceptual development. Brain research suggests that children learn best in a holistic way, using their entire bodies. The active experiences of tasting, touching, looking, manipulating objects, and moving are the levels by which a child absorbs, sorts, and analyzes information at this age.

Through this active involvement, the young child develops a growing understanding of the musical elements. Music experiences must involve singing, movement, speech, rhythmic activities, and sound exploration, and playing small instruments. In this way, every child can feel immediately, at his or her own level, the joy of participating in music.

The assimilation of these concepts by the whole body contributes to the growth of other facets of the child's development. Sensorimotor, auditory, social, vocabulary, and math skills are a few of the areas directly influenced by musical development.

In addition to its function in developing concepts, music can help young children express their emotions. Feelings that are difficult to put into words because of a lack of vocabulary will find a meaning of their own when communicated through music. Music then, is an indispensable part of the education of young children.

A PARENT/TODDLER MUSIC PROGRAM

Susan H. Kenney

The parent/toddler music program workshop outlined a 6-week, 12-session program of experiential music involving parents, 3- and 3-year old children, and college students.

The purpose of such a program is to provide an environment:

FOR PARENTS

- where parents can become more aware of musical experiences that are consistent with the 2- or 3-year-old child's unique modes of learning;
- where parents can acquire some musical skills and materials to help lead 2- and 3-year-old children in musical exploration;
- where parents participate in the musical education of their children.

FOR CHILDREN

- where 2- and 3-year-old children experience the many diverse aspects of music (rhythm, pitch, form, timbre, etc.);
- where 2- and 3-year-old children are free to participate in music in many ways (as performers, listeners, composers);
- where 2- and 3-year-old children experience music with those they hold most dear, their parents.

FOR COLLEGE STUDENTS

- where college students can learn to develop appropriate materials for parent/child music learning environments and organize and implement a successful lab-application of learning theories.

Mechanics of observation, lecture, and demonstration were explored with specific suggestions for music skill development (autoharp playing, improvised singing, homemade instruments, etc.), song games, listening, concept development, and social interaction through group singing and activities.

THE SINGING CHILD

Marie Tomlinson

This session dealt with procedures to train the singing voice of young children. The method is based on working with an entire class, rather than on one-to-one contact between teacher and child. The emphasis is on the positive development of singing rather than specific individual remedies.

After identifying children with pitch-matching ability, the teacher can direct vocal training games, involving the cooperation of the high- and low-ability groups.

Songs can be used as a tool for rhythmic training, since they provide a holistic format for the understanding of rhythm. Note values have literal meaning in themselves, but they take on musical meaning in the context of a phrase of a song. In singing, the child experiences the musical energy points of tension and release, which is the implicit content of rhythm.

In choosing song materials, the teacher should consider more than pitch range. The speed at which intervals are sung contributes to the difficulty of performance. The words of the piece should be considered for the pitch placement of voiced consonants. Teachers should also encourage the correct placement and production of consonants. How to prevent future vocal crises was discussed as well as methods to ensure the continued good use of the singing voice.

IS THERE A "BETTER" OR "EASIER WAY" TO LEARN?

Mary P. Pautz

This session was devoted to the discussion of learning styles. As we value uniqueness in other aspects of living, we need to nourish the uniqueness of each child's style of learning. Adults who work with children must find the mode of instruction that communicates ideas to each child at a personal level of perception.

The perception of music involves the use of three modality channels--visual, auditory, and kinesthetic. No one sense proves easiest or best as a vehicle for learning. Some children prefer one mode over the others. However, many young children seem to favor the kinesthetic mode.

Music sessions can include activities to accommodate all types of instruction. Learning centers with sound exploration items, visuals that stimulate the understanding of musical concepts, and movement activities that help children feel the motion of music in space can expand the common practice of singing and marching into a personal enrichment in music for each child.

Adults working with children in music should adapt their own response modes to those of the child. A reflective child needs time to think before reacting, while a more impulsive child will be ready to jump into an activity with both feet. Sensing the child's concept of tempo, as well as planning a variety of learning activities, provides educators with valuable tools with which to tap each child's uniqueness.

PART IV
ABSTRACTS OF RESEARCH SESSIONS

THE ROLE OF MUSIC IN CHILD DEVELOPMENT

J. Craig Peery & Irene W. Peery

Although music is an integral part of children's lives, surprisingly little attention has been paid to systematic examination of the role and significance of music in childhood. We suggest two major approaches to the influence of music on children that are helpful in conceptualizing music research. First, music has inherent merit in itself. As a part of life and one of the beauties of human culture, there is value in exposing and training children with regard to music because it is good and desirable. Second, developing performance and listening skills in music may have attending benefits that generalize to other categories of personal and social competence. These two directions are illustrated below. Both approaches to music and children have been discovered, but little has been done to determine if these relationships exist and what their exact nature may be.

Music as Music: Developing Skills, Abilities, and Appreciation

Accumulating information and ideas about the performing and fine arts can be a way of "banking" cultural capital that can later be spent in attaining and maintaining social status and influence. Beyond this, many parents feel that music exposure and training is enriching and positive as a part of human experience.

Music as a Means of Promoting and Fostering Personal and Social Competence

Considerable attention has been given in research to music and its correlation with cognition, language, motor skills, self-esteem, social interaction, and locus of control. Much of this work does not focus on music as a major independent variable, and little attempt has been made to integrate these aspects of musical influence into a coherent picture.

AN ANALYSIS OF HISTORICAL REASONS FOR TEACHING MUSIC TO YOUNG CHILDREN: IS IT THE SAME OLD SONG?

Thomas W. Draper and Claire Gayle

One hundred and fifteen textbooks published for early childhood educators between the years 1887 and 1983 were examined. The reasons given in each book for teaching music to children were categorized and era changes were noted. The most frequently given reasons were: (a) to provide self-expression and creative pleasure; and (b) to promote motor and rhythmic development. The majority of authors in all time periods mentioned these two reasons, although no era changes were observed. Seven other reasons were mentioned in at least 10%, but less than 50%, of the books: (a) to develop an aesthetic sense; (b) to promote language development; (c) to promote cultural heritage; (d) to promote cognitive development; (e) to teach social skills; (f) to help the child feel positive about self; and (g) to provide a cathartic release of tensions. The following era changes were observed: Books written prior to 1950 mentioned developing and aesthetic sense more often than books published after 1950. Books published after 1965 mentioned language development more often than books published prior to 1966. Books published after 1978 mentioned cognitive development more often than books published before 1979. Books published after 1974 mentioned self-esteem more often than books published before 1975. Books published between 1950 and 1965 mentioned cathartic release more often than books published before or after this period. No era fluctuations were observed in mentions of promoting cultural heritage or teaching social skills. Finally, it was noted that while early childhood educators have been persistent in asserting that relationships exist between musical activity and desired outcomes, there are almost no empirical data to support the existence of such relationships.

MUSIC AND THE LEARNING OF LANGUAGE IN EARLY CHILDHOOD

C. Ray Graham

Music has long been a favored medium for teaching foreign languages. A cursory examination of the literature reveals numerous articles on the subject--the tacit assumption being that sentence patterns and vocabulary learned through song will automatically become a part of the productive linguistic system of the learner.

The scientific study of language over the last few decades has revealed two significant characteristics of language. First, language is generative in nature (i.e., through the use of several subsystems, each with a rather small set of discrete units, large numbers of utterances can be created through combining and recombining these elements). Second, the actual process of acquiring a language entails not only the learning of sentence patterns that repeat themselves but also the learner's analysis of each of these subsystems and the synthesis of processes for combining the elements properly. These processes of analysis and synthesis are for the most part intuitive. The learner is largely unaware of the "rules" that he is learning.

In the process of language acquisition there are identifiable stages of development through which virtually all learners seem to pass. It has been observed that when a learner first encounters a new linguistic form, the form appears to be recorded and reproduced, at least as far as the immature neural system will permit, in its entirety as an unanalyzed unit. Subsequently, as the form is encountered and used repeatedly, the learner begins to analyze the form into its parts and to resynthesize the form through a process that is not well understood.

When using songs as a means of teaching language, one must be aware that the language material contained in songs does not readily become a part of the productive linguistic system of the learner. I will propose that there are at least three different levels of involvement of the linguistic system in the learning of songs.

I will call the level of least involvement the nonlinguistic level. This is illustrated by rote learning a song in which the child is unaware, or marginally aware, of the meaning of the words and sentences in the song. While learning of songs is facilitated by the child's knowing the meaning, we have all observed instances in which a child has learned to sing a song without knowing what it means. At best, this type of learning may assist in the child's acquisition of low level phonetic aspects of language such as syllable timing and rhythm.

A second level of processing is the formulaic level. Here the learner learns the song in such a way that the meaning is clear. This level of processing is often the result of a teacher's using visual aids and other meaning cues in the teaching of the song. Learners who have achieved this level of processing can sing the song on demand but the sentence patterns in the song do not become a part of the analyzed productive linguistic system. At best a few vocabulary items become usable in the productive utterances of the child.

The third level of processing of songs by second language learners occurs when the teacher involves the children in learning activities that go beyond simple learning of the songs. It occurs when the song becomes a means of linguistic interaction. For example, when children learn a song like Hokey Pokey, they actually manipulate the behavior of others through the use of the words of the song (much as they do with commands, questions, etc.). This interaction facilitates the integration of the language of the song into the productive linguistic system of the learner.

The remainder of the paper presented specific suggestions on how to achieve the third level of linguistic processing in the use of music in language teaching in young children.

THE DEVELOPMENT OF MUSIC SYNTAX: SOME OBSERVATIONS OF MUSIC BABBLE IN YOUNG CHILDREN

John M. Holahan

The purposes of this paper are: (1) to report selected musical behaviors of young children; and (2) to interpret those observations given the premise that much of what a child learns from those behaviors is manifested in the development of music syntax.

Two samples of preschool age children were observed. One sample consisted of 125 5-month to 5-year old children. The second sample consisted of 25 predominantly white, middle class, 3- to 5-year-old children.

The children were provided informal exposure to music by the writer. The music activities were informal for the following reasons. First, songs and activities were not taught with a rote procedure. Children were free to listen to and participate in activities without restrictions or demands imposed by the writer. Second, no attempt was made to "teach" specific musical or nonmusical concepts, such as pitch matching, "beat," "high" and "low," "loud" and "soft," and "steps" and "skips," which are examples of formal music instruction and theoretical understanding. Third, the children were encouraged to respond to the music activities, but they were never told that a specific response was inadequate or incorrect.

Three qualitatively different levels of music babble were identified. At the first level of babble, the child performs discrete music elements concurrently "in time" with a musical stimulus--a pitch, a tonal pattern, a movement, or a rhythm pattern. The child at this level of development typically does not perform apart from musical stimulation.

At the second level of music babble, the child performs combinations of discrete music elements arranged synchronically "in time," but those discrete elements do not give rise to tonal or rhythmic organization. The child at the second level of music babble is capable of spontaneous performance of music apart from a musical stimulus.

At the third level of music babble, the child's spontaneous performances become more coherent. Spontaneous performances of familiar songs resemble, but are not identical to, the characteristics of the songs as they had been sung to the child. The child at the third level of music babble is also capable of creating and improvising music apart from concurrent musical stimulation. Spontaneous and creative performances take on tonal and rhythmic organization. Organization of this type exists "across time" diachronically. Music syntax begins with the emergence of diachronic organization. The child's music syntax originates in the second and third levels of music babble and becomes more sophisticated through formal music instruction throughout the school years. Moreover, because the child can create music, it seems reasonable to suggest that music syntax, like language syntax, is a generative capacity.

CHILDREN'S UNDERSTANDING OF PITCH AND PITCH RELATIONS

Carolyn Hildebrandt

The development of children's understanding of pitch and pitch relations was explored with two groups of musically untrained subjects--18 kindergarteners and 12 third graders. Materials consisted of two sets of unmarked Montessori bells on movable wooden stands. Each child was given a set of white bells in a mixed order. After a short period of free play, the child was asked to make up a tune. Once an original tune was composed, a matching set of brown bells was presented, also in a mixed array. The child was asked to play his or her tune on the brown bells so that it sounded exactly like it did on the white bells. Next the child was asked to find all of the bells in both sets that sounded exactly alike. Following this pitch-matching task, children who initially failed to rebuild their tunes were given a second chance.

Eighty-nine percent of the kindergarteners were able to match the bells by pitch, but only 6% were able to reconstruct their tunes. This is in contrast to the third graders, 83% of whom were able to both match the bells and rebuild their tunes. Strategies used to approach the tasks changed with age.

In Piagetian terms, the problem posed is one of simultaneous coordination of part-whole relations, where the whole consists of a figurative series of sound events (the tune) and the parts the individual pitches comprising the tune. The solution involves the differentiation of three aspects that are initially "fused" in experience: the spatial design of the bells on the table, the temporal aspects of the path through which the bells are played, and the actual sequence of sound events. A process of differentiation leads to the discovery of an identity of elements based on the individual pitch of each bell. Once this identity is established, it is but a short step to a concrete operational solution based on the conservation of pitch identity within the context of the tune.

CHILDREN'S FIGURAL AND METRIC UNDERSTANDING OF RHYTHM: THE RELATIONSHIP BETWEEN AGE AND MUSICAL TRAINING

Rena Upitis

Rhythm notation is typically one of the most difficult aspects of music to teach. However, even a cursory examination of children's abilities to clap rhythms and maintain the beat indicates that they have powerful rhythmic understanding. It is hypothesized that one reason for the difficulty in teaching rhythm is that music notation is a qualitatively different representational form from the one used by children to make sense of rhythm. Prior research indicates that there are two forms of rhythmic organization used by the listener in making sense of music: figural and metric. Notation is based on the metric relationships between the durations, but many children, especially those without prior musical training, respond to the more intuitive figural mode.

This study assesses 7- to 12-year-old children's abilities to understand the figural and metric aspects of rhythm. Five tasks, and related measures, were developed to assess children's ability to: (1) make figural and metric descriptions; (2) interpret figural and metric descriptions; (3) produce the metric hierarchy through drumming; (4) describe the metric hierarchy; and (5) relate the metric hierarchy to the surface durations of a melody. Tasks were presented individually through a standardized clinical interview. Children (N=72) were asked to respond in several domains (motoric, verbal, symbolic).

Nonparametric analyses were used to test for differences across age groups and between musically trained and untrained subjects for each of the measures. Protocol analyses were related to the quantitative findings. One of the surprising results was that the differences between trained and untrained children in terms of metric understanding are not as strong as would have been expected from prior research. The most important finding is that all children are able to understand both figural and metric forms to differing degrees. Also, musically trained children do not lose their figural understanding in the process of developing their metric abilities.

The findings are discussed in terms of music education practices. Transition notations for moving between the metric and figural forms are suggested. The integration of the figural and metric forms at all levels of musical training and performance is encouraged.

THE NATURE AND STRUCTURE OF RHYTHM

Thelma Volger

The report for this research session centered upon the particular interest of the study, which is an application of the research findings on the perception of rhythm to the needs of verbally handicapped children.

A theory was proposed that attempts to link the findings of research on the nature and structure of rhythm to teaching--especially the research on grouping size of rhythmic patterns and motor response--not only to the organization of meter that underlies rhythmic patterns in music and verse but also to the unit lengths of verbal language.

Suggestions for research included: a basis for determining the relative difficulty of rhythmic patterns; the effects of rhythm upon memory; labelling of rhythmic ranges; and, perception of rhythmic ratios.

MUSIC IN EARLY CHILDHOOD: NATURALISTIC OBSERVATION OF YOUNG CHILDREN'S MUSICAL BEHAVIORS

Linda Bryant Miller

The purpose of this research was to describe musical behaviors that young children demonstrate naturally and to describe how these behaviors were demonstrated in interactions with peers. Musical development of 3-, 4-, and 5-year-olds was examined in terms of conservation, vocal, melodic, rhythmic, and motor skills acquisition. The critical period of development, the roles of parents and teachers, and the effects of environment on the developing child were discussed. Background of the study was provided through theories and methodologies of Piaget, Montessori, and the Pillsbury Foundation School.

Ninety-five children selected from eight preschools and kindergartens in eastern Kansas were observed in their natural settings. Appropriate musical materials were provided and subjects were allowed to manipulate materials freely and spontaneously. Naturalistic inquiry was used to accomplish the purposes of this research. Because theory is derived from data in the process called grounding, observation was divided into two phases. The first phase grounded behaviors until no new information was provided by subjects. A Musical Behavior Observation Matrix (MBOM), including 30 behaviors common to all classrooms, was designed to assess musical and social interactions by age, race, and sex of the subjects. In the second observation phase data were coded on the MBOM, via event sampling techniques, as target behaviors occurred.

Results showed that young children were capable of creating music without teacher intervention. No differences were observed in terms of race or environment. Differences related to the age and sex of subjects were shown (i.e., females demonstrated more movement than did males; males requested records to be played and used drums more than did females; 3-year olds were more involved in solitary and symbolic play than were older children; 4- and 5-year olds were successful at some tasks that few 3-year-olds could master; and they imitated each other more than did the younger children).

INFLUENCES OF HOME AND FAMILY ON MUSICAL OPPORTUNITIES OF EDUCATIONALLY ADVANTAGED PRESCHOOL, KINDERGARTEN, AND SECOND GRADE CHILDREN

Jean M. Larsen

Data from questionnaires completed by parents of preschool, kindergarten, and second grade children were analyzed to explore the relationship of home and family influences on musical experiences of educationally advantaged youngsters. Subjects were determined to be educationally advantaged due to such factors as high education level of parents, father's occupation, and income.

Findings indicated that the amount of time each parent spends with the child in a one-on-one situation, as well as the educational level of both mother and father, were strong predictors for the time music was played as a background for other activities in the homes of preschool and kindergarten children. These parent variables also were shown to influence which of three types of music--classical, rock, or western--most often played at home.

For second grade children, taking lessons--specifically piano, dance, and gymnastics--were added to the music-played-in-the-home outcome variables as being significantly influenced by home and family. However, the influence variables for second graders' musical opportunities were more extensive; they included, in addition to the parent time and education, sex of the child, number of younger and older siblings, and employment status of the mother.

In this sample, many more females than males had the opportunity to take music and music-related lessons. Findings indicated that the amount of time the mother spends with the child was a predictor of the child's taking piano lessons and that the educational level of the father was the strongest predictor of the child's taking dance lessons. Data showed that the more time the mother spends with the child, the less likely the child was to be taking piano lessons, while the lower the educational level of the father, the more likely the child was to be taking dance lessons.

Although the findings were not considered definitive, they did give some indication of the musical opportunities afforded educationally advantaged children and the family influences related to these experiences.

SPONTANEOUS SONGS OF PRESCHOOL CHILDREN

Horace A. Veldhuis

The purpose of this study was the description and analysis of preschool children's spontaneous songs. The method used was naturalistic observation, in which the naturally occurring events were collected, thereby preserving their spontaneity. Fifty songs of 16 4-year-old children were recorded in a prekindergarten classroom. The songs were described by the experimenter, transcribed, and graphed to reveal common melodic patterns.

The abundance of the songs was noted; approximately 10 per hour were recorded. Their context in complex social interaction included elaborate and flexible use of musical and nonmusical vocalizations. Pitch ranges of the songs were almost three octaves and were often drawn from outside the Western tempered scale. Many pitches sung by the children were wobbly, fuzzy, or speech-like in tone color, which sometimes made them difficult to transcribe.

Pitches were organized by the children in short phrases (most between 1 and 5 seconds in length), using predominantly small, descending intervals. The most frequently used shape in the phrases was the inverted V, a rising/falling pitch contour. The minor third chant pattern was also a common melodic contour. The most frequently used strategy for grouping these phrases was repetition with slight variations. These variations included the addition or omission of pitches and changes in pitch or octave.

The songs contained a variety of immature language forms, including nonsense syllables and extended vowel sounds. Words were usually used in combination with repeated nonsense syllables and indecipherable word-like sounds.

These results confirm the findings of earlier research and suggest a number of dimensions along which children's spontaneous songs should be analyzed and understood as a basis for appropriate music instruction.

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